A Lecture
ON
RADIUM IN SURGERY.

DELIVERED AT THE LONDON HOSPITAL, JANUARY 26TH, 1909,
BY

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MR. HOLLAND, MR. FENWICK, AND GENTLEMEN,—It has appeared to me, as it has appeared to many, that there is the possibility of a great future for radium in the domain of surgical therapeutics. I say *possibly*, because radium is a new remedy, and one must exercise the very greatest caution in speaking of the potentialities of a new remedy. A new remedy is a thing of great expectations and of very ready promises, but sooner or later it must be inevitably associated with a measure of disappointment. I need not remind you of the expectations which were aroused on the introduction of the *x* rays; they were to revolutionize surgery. Well, they have not done so. But the *x* rays have accomplished a marvellous work. And yet it is not perhaps unsafe to say that we are within sight of that point where the limitations of the *x* rays in treatment will be found. The same applies to the high frequency current. That measure was to cure practically every human ill; yet I think I am right in saying that the expectations formed of it have not been realized, and that those who hoped so much from it may feel that they are to a certain extent in the position of false prophets. So also with the Finsen light. There never was a more splendid enterprise in hospital administration than the introduction of the Finsen light into this hospital. The good it has done it is impossible to express in ordinary language; but yet, I imagine, we are not very far from reaching the actual limit of the good that is to be effected by that measure. On the present occasion I have not to preach to you any new doctrine. I merely wish to place before you a *précis* of the present position of this subject of radium in surgery, and to state the facts which seem to justify us in supposing that the utility of radium is likely to be great. I will first of all, if you please, speak of the maladies that radium can cure, then of the method in which radium acts, and, lastly, of the lines upon which the investigation of its powers is likely to proceed. First of all with regard to the cases which radium can cure. In this connexion I do not propose to deal with published cases, although the literature of the subject is large enough; I propose only to speak of patients whom I have actually seen and personally examined. The majority of these were seen in the Paris Institute, and I should like to say how deeply obliged I am to Dr. Louis Wickham, the Director of the Institute, for his courtesy and kindness in allowing me to see the work of that institution.

Let us deal first of all with angiomata, using the term in its widest sense. It may be said, and I think without hesitation, that radium will cure every form of naevus. It can cure the "port-wine" stain, and I would ask surgeons at the present day what measure they have available of which they can say the same. It can rid the patient of a pigmented mole, of a hairy mole—two troubles practically incurable if the size be beyond certain limits. In connexion more definitely with naevus, let me take four illustrative cases. One is that of an infant with a naevus on the crown of the head the size of a gooseberry. There is no means of dealing with such a growth except by operation. It was cured by a comparatively short application of radium. Here is another case, a little more striking—a girl with an angioma of the eyelid the size of a plum. This had been subjected to four operations; twice it had been excised, twice it had been treated with the actual cautery, but with no benefit. It was perfectly cured by radium without trouble or discomfort to the individual. Perhaps a more striking case is that of a young woman who had a naevus occupying nearly the whole of one side of the face. She had been subjected to innumerable operations, but with only very imperfect success, I should almost say with no success. But under the influence of radium—and the treatment was, of course, long extended—she was cured. The last case I will trouble you with under this head is also remarkable. It was that of a child of 12 with a fibrous angioma situated in the substance of its arm, free from the skin, which was uncoloured and sound. The mass was of the size of a hen's egg. It was treated with radium from two sides, and was entirely dispersed in four weeks. It is, I am bound to confess, a little astonishing that a solid mass of such magnitude, not a mere subcutaneous growth, should have vanished so readily. I may here remark that it seems possible to say of radium that there is a relation evident between the amount of radium used and the good it can accomplish. Until now, considering the little quantity of radium available, it means that we are dealing with a substance which may be regarded as limitless. You cannot say that of *x* rays, of the high-frequency current, or of the Finsen light, for they, at least, seem to have reached the limit of their powers. It would not, perhaps, be unsound to draw the conclusion from that that if you could have radium enough you could carry out surgical measures far beyond the confines to which radium is at present restricted. With regard to skin affections, you probably know well enough the effect of radium in curing chronic local eczemas, and especially forms of eczema associated with itching. Nothing is more curious in the use of radium than the manner in which it immediateiy cures, and apparently permanently cures, itching when placed over the surface on a piece of varnished silk. Then radium can cause keloid to vanish; the keloid left by a wound, the keloid left by tuberculous glands, and that obstinate form known as the acne keloid. For instance, I saw in Paris a man, about 30 years of age, the nape of whose neck had been in an appalling condition from acne keloid; apart from the disfigurement produced, the incessant distress made his life almost unbearable. This man had subjected himself to many forms of treatment, but with practically no result. Under the influence of radium the condition had disappeared, and the skin had become almost normal in appearance. I will say nothing about vanishing glands in certain cases where radium has been used, because that may be quite accidental, and it would be premature to draw conclusions from the occurrence.

Now we come to rodent ulcer. Radium will cure rodent ulcers. Of what grade? Rodent ulcers which have existed for many years, in which the tissues have become adherent to the bone, or apparently to the bone, in which there is ulceration, and in which—and this is the most important point of all—in which the Finsen light, the *x* rays and cataphoresis have all been tried and have all failed.

Such cases—and there are many of them—may be cured by two sittings of radium lasting one hour each, the parts being finally left free from attachment to the deeper parts, the skin being soft and pliable. Why I lay stress on such cases as this is for this reason: it has been said radium only acts by means of the *x* rays, which are part of its radiation. Anyhow, here are cases, numerous enough, in which a condition is cured which has refused to heal after persistent treatment by *x* rays. In other words, radium can effect a cure where *x* rays cannot.

With regard to epithelioma of the tongue and epithelioma of the lip. They are cured by radium. You say of what degrees? I acknowledge that the cases are in the early stages of epithelioma; but they are epitheliomata that are ulcerating, and that, so far as we know, can yield to no other treatment except that of operation. If, therefore, an epithelioma of the tongue can be cured by radium, and cured to the satisfaction of those who are responsible for the case, it is a case of epithelioma treated without operation. Many of these I have seen. And you will notice in the present issue of the BRITISH MEDICAL JOURNAL[1] a paper showing the treatment carried out by Dr. Dominici, in which it will be evident to you that epitheliomata of some degree, and one might say almost extensive epitheliomata, have been treated with a measure of success. The same remark applies to commencing epitheliomata on the inside of the mouth. With

[1] January 23rd, p. 242.

regard to epithelioma of the face, I can speak of these cases seen in the Paris Institute. An epithelioma of the face which had perforated into the nasal passage; that was cured after a good many sittings. An epithelioma of the ala nasi, which was destroyed under the influence of radium after sittings which amounted in all to eight hours. An epithelioma of the cheek the size of a two-shilling piece cured and the surface healed over.

You may ask, But are these results permanent? They apparently are. It is true that no great amount of time has yet elapsed; but I saw one case in Paris where an epithelioma of the face cured by radium was perfectly sound at the end of two years. We await with interest the extension of this measure of treatment to malignant disease of the uterus and rectum.

Now, with regard to the action of radium. Radium is obtained from pitchblende, a compound of uranium, and I show you specimens of it obtained from Joachimstal. In appearance, while it is not unlike pitch, it is a little more like anthracite coal. Here is a piece of pitchblende with a little of the rock with it. Here is a seam of pitchblende as it runs in the igneous rock in which it is found. Here, again, is a specimen of pure uranium. Uranium plays a very large part in the manufacture of radium. Radium has, as you know, never been isolated; what we speak of as radium is the sulphate, the carbonate, or the bromide of radium. It appears as a whitish powder, and that powder becomes later on a little yellow, and then perhaps a faint brown. There is radium in this glass tube, and it has turned the glass violet, because it is soda glass. If this had been potash glass it would have turned it brown. On exposure of the glass to heat the colour vanishes. At present the commercial value of radium is artificially very high. If radium ever sank to such a degree of cheapness that it was worth its weight in mere gold it would be exceedingly cheap.

You know, of course, that radium gives off heat, that it is phosphorescent, that if it is dissolved in water it decomposes the same into its component parts; but the main property is that it is radio-active. Radio-activity means that the rays given off by radium have the power of penetrating solid and opaque substances, the power of affecting a photographic plate, the power of producing fluorescence, and the power of rendering air or other gas a conductor of electricity. These rays are of three kinds, known as the alpha, beta, and gamma rays. The alpha rays and the beta rays are composed of material particles or ions, which carry a charge of electricity. That they are material is shown by the fact that the power of these rays is lost when they are passed through cotton-wool. The alpha rays are composed of ions of fair size, having a mass equal to that of an atom of hydrogen. They carry a charge of positive electricity, they are deflected only by an intense magnetic field, they have little penetrating power, and a relatively slow velocity. The beta rays, on the other hand, are composed of ions of smaller size, having a mass equal to only $\frac{1}{1000}$ part of that of an atom of hydrogen. They carry a charge of negative electricity, are easily deflected by a magnetic field, have great penetrating power, and move with a very high velocity. The gamma rays are of a different type. They contain no ions; they carry no electric charge; they are consequently not deflected by a magnetic field; they have enormous penetrating power, and their velocity is about the velocity of light, with which they are comparable. When I tell you that in surgery some of these rays do harm and others do good, you will see how desirable it is to have some acquaintance with the three types of rays.

With regard to general qualities, the alpha rays may exist alone. For instance, polonium, a radio-active substance discovered by Madame Curie, and named after her own country, contains only alpha rays. Alpha and beta rays are absolutely distinct and independent; they can exist the one without the other. But the beta rays and the gamma rays are inseparable, they are never found dissociated. The alpha rays are supposed to give off the heat, and they burn. They are capable of producing a very troublesome ulcer of the skin. They have greater ionizing power than the beta rays, probably as 100 to 1. The penetrating power of these three kinds of rays is expressed as follows: Taking the penetration of the alpha rays as 1, they are stopped by a sheet of mica. The beta rays have a penetrating power of 100, and will pass through a centimetre of lead. The penetration of the gamma rays, on the same basis, would be represented by 10,000, and will pass through one inch of steel. The alpha, beta, and gamma rays have a very close resemblance to the rays which are met with in the vacuum tube used in the production of the x rays. I had this vacuum tube brought here for this purpose. When the current is running through the tube the "cathode rays" pass from the cathode or negative pole to the anode or positive pole.

They correspond to the beta rays of radium. If you take the five qualities of the beta rays as above given, those same qualities are found in the cathode rays. They carry ions which have a mass about equal to the thousandth part of that of an atom of hydrogen, they carry a charge of negative electricity, they are deflected easily by a magnetic field, they have great penetrating power, and their velocity is very high. The x rays are dependent upon the cathode rays, and are inseparable from them in the same sense that the gamma rays are inseparable from the beta rays. Where are the equivalents to the alpha rays in this vacuum tube? If holes are made in the cathode, streams of light pass back in the opposite direction. These are called the "canal rays," or the "diacathode rays." And their qualities are the same as those already given as characteristic of the alpha rays.

The next question is with regard to the application of radium in treatment. The main feature in the application of radium is surface. It is ridiculous to attempt to apply radium as a broken up bead in a glass tube without any notion of the amount of alpha and beta and gamma rays you are using or how far the radiation extends. In applying radium surgically you want surface. In other words, a little radium spread over an even surface is much more powerful and can be much more exactly used than a bead of it in a glass tube. The power of any prepared plate of radium can be estimated by the electrometer with precision. Here are three specimens of the type of apparatus as now used in the Radium Institute in Paris. They are adapted for various localities and are of varying radio-activity.

The strength, by the way, of radium is estimated by taking uranium as a unit. Radium is then represented by a radio-activity of 2,000,000; a piece of "quarter-strength" will therefore have a radio-activity of 500,000. The powdered radium, when placed on the disc or plate, is covered with a varnish, which is unaffected by boiling, by alcohol, or by the heat of a sterilizer. In this specimen are only 10 mg., but every milligram is available. Put the same quantity into a glass tube, and the agent is almost useless. Radium can be mounted on "gum elastic," as in the uterine stems employed, or it can be spread on silk or cloth, or on anything which can be varnished.

Radium must be ordered by a definite prescription. For the individual case a plate of a certain diameter is ordered, and the proportion of alpha, beta, and gamma rays required will be stated in the prescription. The alpha rays may have to be cut off. How? By a certain thickness of aluminium, a very thin plate. Then comes the question of the distance; how close should the plate be held? The closer it is held the more intense is the effect, but the narrower the area of action. How long shall it be applied? Radium of this type I now show can be applied for about an hour at a time. Dr. Dominici, has made special use of the ultra-gamma rays, the most penetrating rays of all, and allows them to act for hours at a time. This limited action is secured by so screening the plates that what passes through into the patient's body are only the ultra-gamma rays, those of the most intense velocity and the greatest penetrating power. There is a still more curious thing with regard to radium. Suppose this to be a closed glass vessel in which you have suspended a tube containing a solution of radium, or a salt of radium. If you put into that vessel a penny, that penny becomes radio-active. This is not due to the rays coming through the glass of the tube. Screen the tube with any thickness of lead you like, and it will make no difference, the penny will still become radio-active. This induced radio-activity is due to something which comes out of the tube, and that something is the "emanation." If you break the glass globe with which the experiment is made you find every bit of it is radio-active. Take the penny out and it is radio-active and

remains so for a considerable time. Scrub the penny with emery powder, and it loses its radio-activity. Test the emery powder used, and behold it has become radio-active. Wash the penny with nitric acid and it loses its radio-activity; evaporate the nitric acid and the residue left is radio-active. In brief, there comes off from radium an emanation, or if you like a vapour, which has the power of rendering any body it touches radio-active. There is no method of inducing radio-activity except by the emanation, and it is evident that this emanation leaves on any surface it touches an active deposit—a deposit which you can take off and remove.

It is probable that much of the future of radium as regards surgery lies with the emanation. This active deposit forms on any surface exposed to the emanation. By increasing the surface so exposed you increase the amount of radio-activity.

As I have been very careful not to mention any fact other than what I have myself seen, I wish to state the following as a thing told me: An eminent scientist in London has used a solution of this active deposit as an injection into the tissues of the body, for it is easy to get a solution of that deposit. This solution was injected into a mouse which was the subject of an abdominal cancer produced artificially, and the growth vanished. It is scarcely fair to mention this case, because I can add no further details. Such an experiment needs to be verified and supplemented by many other data. I have noted the local effects of subcutaneous injections of the solution of the emanation in the human subject. I will not give you details of the case, because the issues are misleading, and open up a wide subject into which I need not now go. Each injection performed in this patient with an ordinary hypodermic syringe produced a scar and pigmentation of the skin such as I have never met with in my whole surgical experience. The appearance at the site of each puncture was entirely new to me, and led me to think that I was viewing a condition of scar which had hitherto been unknown.

I will now conclude by pointing out the lines upon which the future investigation of this subject will probably extend. First of all, it is very essential to ascertain the action of the radium rays and of the emanation upon bacteria and their products. In the next place, the selective action of the radium on certain tissues must be studied. This selective action is one of the most astonishing things about radium as illustrated by the manner in which it picks out vascular tissue for destruction. Under its influence this tissue, as met with in the angioma, vanishes. What is radium likely to do for other conditions associated with vascular growth? What is it likely to do for Graves's disease? Has it any kind of selective effect upon embryonic tissue, which is allied to that of certain growths? All that has yet to be ascertained. Then comes the effect of radium in large amount. On this question of the amount great possibilities appear to hang. Little has yet been done, except by Dr. Dominici, to ascertain the effect of introducing radium into the substance of a growth in a tube permeable to its rays, such as a tube of thin aluminium. So far as he has investigated the matter the results have been encouraging.

Then come the questions of the effect of the emanation if inhaled, the effect of injection into the diseased parts of a solution of the emanation, the utility (if any) of radio-active water and other substances rendered potent by radium.

Finally, let me once more warn you against raising false hopes in discussing the potentialities of a little-known remedy.

A PETITION promoted by the Betterment of London Association to the Prime Minister requesting early legislation to check unnecessary and objectionable street noises has been signed by a large number of medical men residing in the West End of London.

THE second international course of legal psychology and psychiatry will be held at Giessen, April 13th to 18th, 1909. The course will be under the direction of Professor Sommer, who will have the co-operation of Professors Mittermaier and Dannemann of Giessen, and Professor Aschaffenburg of Cologne. All communications on the subject should be addressed to Professor Dr. Sommer, University of Giessen.

Observations
ON
HUMAN GLANDERS:
WITH A STUDY OF SIX CASES AND A DISCUSSION OF THE METHODS OF DIAGNOSIS.

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WITHIN the last few years five cases of glanders have been admitted to the wards of the Westminster Hospital. The disease, in its different types and stages, presents such diverse clinical pictures, and diagnosis is so often difficult, that there is warrant for recording these cases at some length.

This article was almost complete in 1905, but after making a study of 134 cases reported in the literature, an exhaustive treatise by Robin of Montreal appeared with an analytical report of 156 cases, including most of ours. Hence we did not feel justified in burdening the literature with a repetition of what had been so well done in Robin's thesis, but preferred to await further cases to enable us to investigate several points that had occurred to us. So far no other case has come into our hands, but many have been diagnosed recently in London, and we are firmly convinced that with a better knowledge of the protean symptomatology many will be revealed which otherwise would be overlooked. There can be no doubt that the Registrar-General's statistics, which show glanders as a rare disease, are misleading, and considerably underestimate the incidence of this disease.

CASE I.

H. A. L., aged 25, horsekeeper. Admitted November 12th, 1904, under the care of Mr. Spencer.

On October 31st fell in the stable and hurt his ribs; for this he was strapped. Two days later went to a dentist with an "alveolar abscess"; "cellulitis" developed, and for this he was treated at various places; no incision was made. On November 9th nodules appeared on the limbs, more or less in the neighbourhood of the joints, the knees more especially. Next day, 10th, a pustular eruption broke out on the neck, trunk, and limbs; the buccal mucosa sloughed, and a nasal discharge appeared; the upper part of the face became swollen. On admission temperature 103.4° F.; respirations 38. Restless, low delirium; no expectoration, no diarrhoea. The glandrous lesions were of three types: (1) A diffuse, brawny, dark-purplish swelling of the face and neck, (L.) involving the temporal portion of the left conjunctival sac; the advancing edge erysipelatoid. (2) A pustular eruption, distributed without special reference to aspect, upon face, neck, trunk, and limbs; the lesions consisted of a clear yellowish-white mattery head upon an angry red areola. Upon the left cheek these pustules ultimately became confluent, and, breaking down, left a large honeycombed, ulcerating surface. (3) Multiple subcutaneous and intramuscular nodules apparently in the course of the lymphatics; these nodules reddened superficially and broke down; but in no case did the skin actually give way over them. One or two were incised for diagnostic purposes; the pus was thick, yellow, curdy.

Abdomen normal. Splenic dullness increased, but edge impalpable.

Breath sounds altered chiefly in respect of prolonged expiration; there was no sign of consolidation; no gross added signs; the sounds might be described as "wheezing."

There was some articular pain, but the joints were not distended. There was no enlargement of the axillary, inguinal, or cervical lymphatic glands. The tongue was not furred, but the mucosa of the cheeks was extensively ulcerated. Muco-purulent discharge from the right nostril. Sensation, general and special, undisturbed.

The temperature kept above the 103° line until a few hours before death, which occurred on November 14th, at 6 a.m.

Thirty-two horses became glandrous, and it is worth noting that seven days elapsed after the first appearance of symptoms in the man before a diagnosis of glanders in the horses was made.

Pathological Findings.—Examination of the pus from a superficial abscess during life revealed polymorphonuclear leucocytes, and after prolonged search and careful staining a few typical *B. mallei* and no other organisms (Fig. 6);

some of the pustules, however, had become contaminated with staphylococci. From the deeper abscesses pure cultures were obtained on potato and glycerine-agar of an organism morphologically and culturally resembling *B. mallei* and these inoculated into guinea-pigs gave positive results, though the animals died too rapidly in thirty-six hours) to allow of "characteristic" changes suggesting that the organism was of exceptionally high virulence. Typical *B. mallei* were obtained from the bodies of the guinea-pigs.

Post-mortem Appearances (eighteen hours after death). — Body well nourished; great tumefaction of soft tissues of the face, especially of the left cheek and lips—the swelling is partly due to inflammatory oedema and exudation and partly to the presence of abscesses in the skin and muscles; numerous pustules of varying size (pin's head to pea) in the skin of the head, neck, trunk, and extremities (Fig. 1); some stand out, others are flat and depressed, whilst on the left side of the cheek and jaw many have broken down so as to produce a punched-out honeycombed appearance with a dusky purple hue; the muscles are the seat of numerous abscesses containing a thick sanious pus; joints normal; mucosa of nose and adjacent sinuses is much swollen and hyperaemic, that over the inferior turbinated bone resembling an aggregation of small papillomata (Fig. 2). The lungs are much engorged and oedematous and the seat of numerous small nodules with softened centre and hyperaemic periphery; pleurae covered with a thin layer of fibrinous lymph. Spleen, 12 oz., soft and homogeneous. Remaining viscera normal, save for engorgement of kidneys, adrenals, and brain.

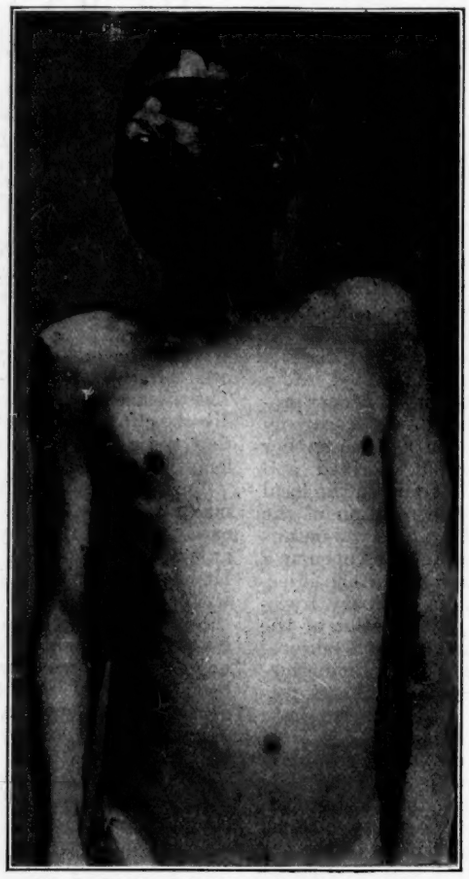


Fig. 1.—Photograph taken after death of Case I. The honeycombed appearance produced by the broken-down pustules on the cheek and jaw is well shown. Also some small pustules, discretely scattered over the left shoulder, and a few on the right and on the trunk.

Histological Appearances.—The abscesses in the skin, muscles, and lungs consisted of collections of round cells with indefinite nuclei, though some of these were undoubtedly polymorphonuclear cells; for the most part they could not be distinguished from monomorphonuclear cells by any method of staining. The blood vessels, of which some are in the centre of the cell collections, are congested, but it is not clear whether the virus has arrived by the veins or lymphatics. A characteristic feature of all these areas is the extensive central degeneration of a peculiar type, the *chromatotexis* of Unna, resulting in a deeply staining diffuse network of débris which obscures the detail of the sections. In the skin there is an epidermal and subepidermal collection of round cells, amongst which are some swollen and desquamating epithelial cells. In the muscles the cell collections spread along the interfibrillar tissue, and there is much surrounding oedema (see Fig. 3). In the lungs the small areas of consolidation consist of alveoli filled with cell and plasma exudation, and surrounded by a broad zone of hyperaemia in which the alveoli are choked with red blood corpuscles. Examination of the thickened, corrugated and hyperaemic mucosa of the nares showed merely oedema and congestion. There was no evidence of cell infiltration or proliferation, and no organism could be found.

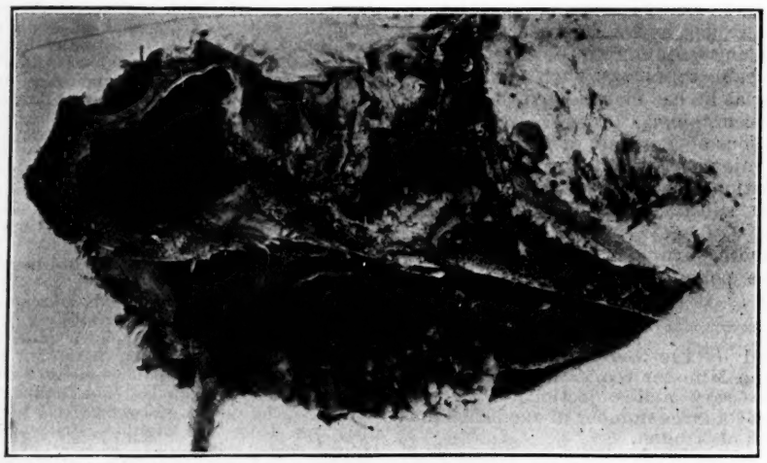


Fig. 2.—Wall of nasal cavity of Case I showing papillomatous condition of oedematous and engorged mucosa over inferior turbinated bone.

Bacteriological Examination of Sections.—Careful search, after special staining (carbol-thionin blue after preliminary treatment with acid) revealed sparsely scattered typical beaded bacilli in the lungs, and skin and muscle abscesses, but the central degeneration, with its avidity for the same dyes, rendered their identification difficult (see Fig. 7). It must be stated that, with a modified Romanowski's stain, the bacteria were found just as readily, and the general appearance of the sections was more pleasing.

CASE II.

A. A., aged 45, horsekeeper. Admitted under the care of Mr. Spencer, July 14th, 1905.

Illness commenced seven weeks since with severe frontal headache, pains in the muscles of calf and forearm, and prostration. No history of infection could be obtained, and no initial lesion was discovered. Not till five weeks later did he notice any swellings; then in quick succession painful lumps appeared in the left leg and forearm. He stated that these lumps had to some extent decreased in size; he had no joint pain, no intestinal or respiratory disturbance, no ulceration of or discharge from the nasal or oral mucosae. Temperature, 102.2°.

Upon examination, some eight or ten subcutaneous and intermuscular abscesses were found and incised. All save one were upon the lower segments of the extremities. The urine at first was normal but subsequently became albuminous. Carboluria occurred after the first operation, at which pure phenol was applied to the abscess cavities. A few more abscesses formed and were opened. A fortnight after admission the right knee became swollen. It was aspirated, and, as the fluid contained *B. mallei*, subsequently opened and drained. From this time the condition was one of progressive intoxication with asthenia. Severe diarrhoea set in and respiration became embarrassed, though no pulmonary physical signs were detected. The temperature, which hitherto had run an irregular course, varying between normal and 104.8°, took a steady upward trend, and at death was 105.2°.

Pathological Findings.—On the day after admission pus from a cutaneous abscess revealed, after careful search, one or two bacilli only, and no other organisms; but characteristic cultures of *B. mallei* were obtained on glycerine-agar and potato (brownish slimy growth) in forty-eight hours, and these cultures, inoculated into guinea-pigs by Professor Hewlett, produced typical enlargement of the testicles. Fluid from the affected knee-joint, aspirated on August 8th, showed only two bacilli in the centrifuged deposit; but here, again, typical and luxuriant cultures were obtained.

Blood Examination.—On July 21st, when the general condition was fairly good, agglutination experiments were tried with the bacilli obtained, but the serum, even in 1 in 2 dilution, caused no clumping or loss of motility. About this time, also, cultures of the blood were made in large quantities of peptone broth and glycerine-peptone broth with negative results; but on August 10th — the day before death—the blood was again drawn direct from the vein, and in forty hours typical cultures were obtained.

Post-mortem Appearances (four hours after death). — Rigor mortis; body emaciated; numerous surgical incisions in skin and subcutaneous tissues of the extremities; one pustule on the left hand and another on the chest. Blood and muscles very dark in colour; the lungs alone showed evidence of secondary infection—the right, 17 oz.; the left, 14 oz.; no pleurisy; scattered throughout the lower lobes and felt superficially were numerous dark, haemorrhagic, firm areas of small size, con-

solidated so that they sank in water; in the centre of some of these areas was a little pus; the intervening lung tissue was apparently normal, as were the bronchi and trachea. Nothing of note in the heart (10 oz.), peritoneum, or abdominal viscera, save for slight congestion of the intestines; spleen (6 oz.), purple colour and firm; kidneys (15 oz.), febrile; brain (48 oz.), arteries and thoracic and abdominal glands all normal. The right knee-joint had been drained, and the cartilages were roughened.

Histological Appearances.—The lesions were similar to those in Case I—namely, inflammatory foci of a haemorrhagic type, but less active. In the lungs were patches of pneumonic consolidation, with much surrounding haemorrhage and great

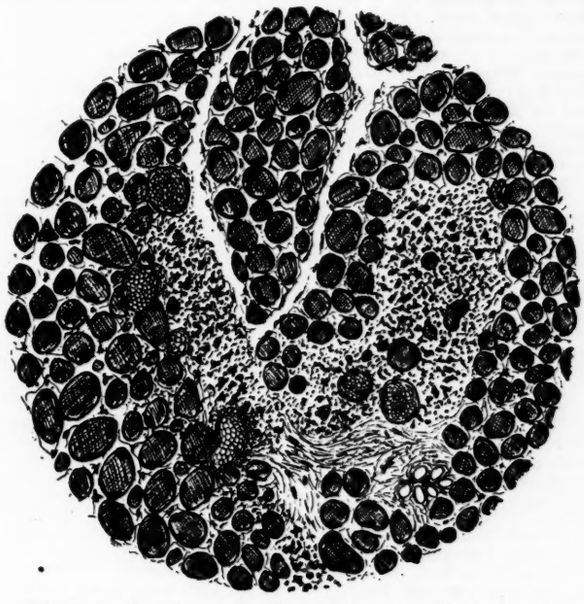


Fig. 3.—Section of muscular abscess from Case I showing purulent infiltration between the fibrils, congestion of vessels, chromatotexis of the infiltrating cells. (Semidiagrammatic drawing by Mr. J. Braxton Hicks.)

congestion of the capillaries. In these areas the central alveoli are filled with leucocytes, and the adjacent ones with leucocytes, blood, and fibrin in varying amount; in some the bronchi are occluded by a proliferative and exudative bronchitis, and in the centre of one is a vessel filled with leucocytes and débris (suppurative bronchitis), an appearance suggesting an infection via the pulmonary artery (Fig. 5). The affected bronchi are near to the inflamed vessels, so the condition may be described as septic bronchopneumonia. *B. mallei* were found in scanty numbers in the lungs in the pneumonic areas, but not in the spleen or kidneys, which showed little change histologically.

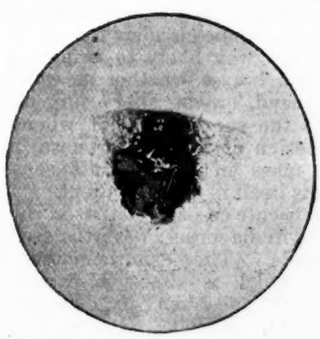


Fig. 4.—Patch of haemorrhagic bronchopneumonia. (About natural size.)

CASE III.

H. S., aged 25; horsekeeper. First seen in out-patient department by Dr. Hebb, who recommended him for admission with a tentative diagnosis of glanders.

Syphilis five years ago, but no sign for three years. The present illness began fourteen days ago, when he awoke to find swellings of right arm and leg; he thinks they have not increased in size since. On and off he has had severe nagging pains in both places. There have been no nasal or pulmonary signs or symptoms. The swellings were intramuscular abscesses, that on the arm being discrete, with little or no surrounding induration. The thigh lesion, on the other hand, showed a red area, saucer size, on the front of the thigh about the middle, and a wide area of brawny induration. Temperature on admission (December 18th, 1901) was 99°, rising to 103° at midnight.

Operation, December 23rd.—The swellings incised, contained curdy pus and gelatinous matter. The wound in the arm was sewn up and healed by first intention. In the thigh wound a sinus formed, but closed up rapidly; the superficial parts granulated and healed perfectly under a "leno" bandage.

On January 25th, 1902, there was pain in the left shoulder, which passed off, however, without anything definite developing. The notes state that "about half a dozen raised spots with vesicles are scattered over the left shoulder and neck under the chin." There is no evidence that these had anything to do with the disease. He was discharged well.

Pathological Findings.—From the pus typical cultures were obtained on glycerine-agar plates and subcultures on potato on December 24th, and these inoculated into guinea-pigs by

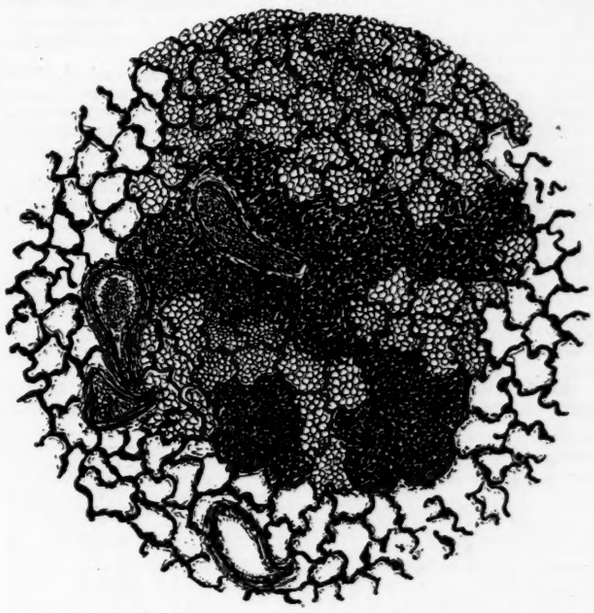


Fig. 5.—Section of a patch of pulmonary consolidation of Case II. In the centre is a branch of the pulmonary artery, which is filled with purulent clot; around this are alveoli filled with cell exudation and in a condition of advanced degeneration, while further afield are alveoli engorged with blood corpuscles; to the left and below this artery are a bronchiole and a vein, the former filled with cell-exudate the latter with corpuscles. (Semidiagrammatic drawing by Mr. J. Braxton Hicks.)

Mr. Shattock gave positive characteristic reactions, namely, "acute inflammation of tunicae vaginales, adherent testes, and intense engorgement."

On February 6th only *Staphylococcus pyogenes aureus* were cultivated from the wound.

CASE IV.

T. M., aged 26, carpenter, working in a stable where there were sick horses. First saw Mr. Turner in the out-patient department, where a diagnosis of glanders was suggested.

Admitted June 2nd, 1905, under the care of Mr. Stonham. Temperature on admission 101°. There had been general malaise for three weeks; pain and tenderness in lower third of the thigh and peroneal aspect of the right leg came on suddenly eight days ago, and confined him to bed.

At the operation intermuscular abscesses were found; there was no affection of bone or periosteum such as the clinical signs had led one to expect. Both wounds granulated well.

Pathological Findings.—On June 2nd, 1905, a blood examination showed a distinct leucocytosis, but no increase of polymorphonuclear cells. Red corpuscles, 4,920,000; haemoglobin, 55 per cent.; leucocytes, 19,400. On June 2nd in the fresh pus only one or two bacilli were found after long search, but characteristic cultures were obtained on various media, the growth being described as a Gram negative, relatively-thick bacillus, actively motile and non-beaded, and badly staining. Typical inoculation results were obtained in guinea-pigs in three days.

Seen again August 4th, 1906. Had no further trouble of any kind; his blood at this date possessed no agglutinating power for the *B. mallei*.

CASE V.

A. B., aged 22, carman. First seen by one of us in the out-patient department in May, 1904.

At that time the disease had existed for nine months. The patient stated that the earliest symptom was deafness, a sense of fullness in both ears; the nose became obstructed, and both nostrils discharged. His speech had become indistinct about a month after the onset of the trouble. When seen, the soft palate was entirely destroyed; the hard palate was perforated, and there was a widespread granular erosion of the oral and nasal pharynx. On the lateral aspect of the dorsum linguae was a soft discrete swelling, walnut size. There was no history or evidence elsewhere of acquired or congenital syphilis. The father and mother were healthy, but there was tuberculosis on both sides of the family. The condition was regarded as

syphilitic, an opinion concurred in by Mr. de Santi and most of those who saw the case subsequently. Mercury and iodides were prescribed.

In October, 1904, he was admitted under the care of Mr. Tubby, and remained under treatment at intervals until April, 1905.

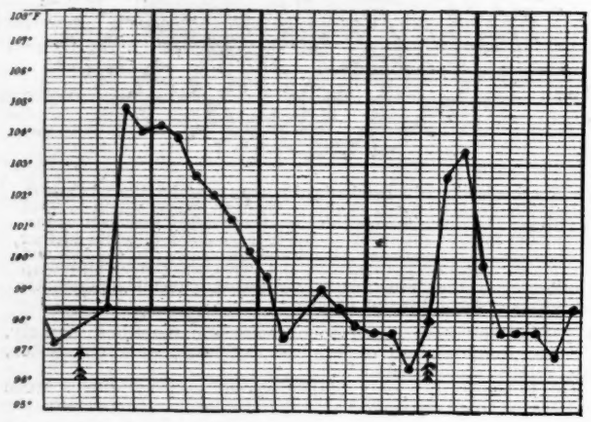
On admission, the oral surface of the hard palate, posteriorly, was tuberculated, and bathed in tenacious muco-pus; the tonsils were ulcerated, and the posterior wall of the pharynx, which had been the seat of extensive shallow ulceration, was now covered with crusts. When these were removed it was seen that many small ulcers had become confluent; the edge was circinate; in some places healing had occurred, with the formation of slightly depressed and puckered cicatrices; here and there yellow points indicated the sites of ulcers in process of formation. The lingual mass had become a large shallow ulcer, with a broad raised edge, pallid at the summit, indurated, and pretty sharply defined.

There was but little tenderness; salivation was marked. The anterior parts of the nose were not ulcerated, and there was no nasal discharge. The cervical glands were moderately enlarged.

The lesions were painted with lactic acid and kept constantly cleansed. In November mercurial injections (biniodide) were commenced; the tongue was several times scraped.

The failure of antisyphilitic remedies was so pronounced that, although no tubercle bacilli were found in the scrapings, light treatment (*x* rays) and high-frequency applications were tried, but without success. By December, 1904, the ulceration had spread considerably, involving the anterior parts of the tongue, but for a month or two the progress of the disease seemed to be arrested and the patient's general condition improved. The temperature curve for nine weeks showed an almost uniform daily intermission of 2 or 3 degrees, but for the last month or two of his first stay in hospital was almost within normal range.

Readmitted January 14th, 1905. The temperature having been practically normal for 48 hours, mallein mxvi was injected



Mallein reaction. Case v.

⟶ Injection of mallein, mxvi. ⟶ Injection of mallein, mxvi.

and a definite reaction resulted. A second injection on the 17th produced a similar but less marked result. On the 26th an injection of tuberculin was given; there was no local reaction, and though on the 28th, 29th, and 30th there was some elevation of temperature there was nothing like a typical pyrexia.

Admitted for the third time, April, 1905. The disease had spread extensively, having destroyed the alveolar parts of the upper jaw anteriorly and to the left posteriorly. Almost the whole of the anterior third of the tongue was destroyed; the right antrum of Highmore was invaded.

Hypodermic injections of calomel were employed, thirteen doses of 5 grains each being given in six days, but without benefit.

By the courtesy of the medical superintendent of the Lambeth Infirmary, Dr. Quarry, we have learnt that death took place from "exhaustion" on August 19th, 1905. The lungs were clear; there was no generalized eruption, but he had had abscesses about the buttock, and at death there was a gangrenous patch on the palmar surface of the right hand. The lower jaw was extensively necrosed; there was ulceration of the nasal passages, with inflammation of the conjunctiva and lacrymal sac on the left side. The central two-thirds of the tongue had sloughed.

Pathological Findings.—A portion of the spreading edge of the ulcer was examined histologically several times during his stay in hospital. The tissue, consisting of mucosa and submucosa, showed the appearances of intense inflammation with superficial ulceration and subjacent inflammatory exudation and oedema; superficially there were fungi and bacteria of various kinds, but none characteristic; no tubercle bacilli could be found on special examination. A diagnosis was ultimately arrived at by inoculating a piece of the ulcer into a guinea-pig, subcutaneously, and obtaining a positive Strauss reaction. A more recent examination in the light of the diagnosis is of interest; a few beaded bacilli, sometimes in clumps, resembling *B. mallei*, can be found in the deeper parts amongst the cell collection, and no other organisms but these in the depths. The cells are of all kinds, leucocytes and connective tissue cells, with numerous blood vessels scattered amongst them. A striking feature is the presence of comparatively large areas of cell degeneration (chromatotexis) with a marked affinity for blue dyes. No giant cells were seen. The tissue is for the most part of the nature of granulation tissue.

CASE VI.

(Under the care of Mr. C. C. Choyce, Assistant Surgeon to the Seamen's Hospital, who kindly allowed us to make use of his notes and to see the case.)

A horse-bus driver in November, 1906, noticed two "boils" in the neck just below the left side of the jaw; these increased in size for a week, when they were accidentally cut by a barber who shaved him. In two weeks his general health became affected, and a doctor lanced the boils and a lot of "yellowish discharge" escaped. Gradually a large swelling extended around these boils over the whole side of the neck, and the discharge increased in amount. His general health grew worse, and in six weeks from the onset he had severe pains in the calves, which lasted three weeks, and he went to an infirmary. The swelling then spread on to the chest, and two or three small lumps appeared on the chest below the main swelling; these spread and coalesced, perforated the skin in several places, and ultimately fused into one large ulcer, extending from the second left intercostal space to the jaw, 3 in. to 4 in. in diameter, irregular floor and edges, with pus undermining them and discharging dirty-yellow foul pus; in the neighbouring bluish skin were several small, round, ragged ulcers discharging pus. In this state he was admitted to the Seamen's Hospital fourteen weeks after the onset. *B. mallei* were obtained in almost pure culture from the discharge, and corroborated by Professor Hewlett after animal inoculation, the guinea-pig dying in two days with swollen testicles.

Progress.—Active surgical treatment was adopted with a view to removing the entire area of disease, followed by skin grafting; in the course of this the ulcer perforated into the trachea and into one of the larger veins. He was discharged nine months after admission, cured, and a year later he was perfectly well and had resumed work.

The sputum was several times examined as he had a troublesome cough, but no bacilli were found, and on his reporting himself the cough had disappeared. There was a little pyrexia throughout, but not marked, and there were superadded pyogenic cocci to account for some of this. The serum was examined by us during the healing stage, but no agglutinative action was found.

About three weeks before the onset two of his horses were removed from the stables suffering from some trouble "involving the air passages," though the L.C.C. inspector denied any cases of glanders in the stables.

A study of these cases will reveal the remarkable circumstance that there is but one factor common to all six cases. This is an occupation bringing the individual into more or less direct connexion with horses. In all but Case v there was, in addition, a degree of prostration quite out of all proportion to the clinical signs. In Cases iii and iv it was entirely upon these two observations that even a tentative diagnosis was made, and it was not until bacteriological and inoculation evidence was forthcoming that the nature of the cases was established. So various are the lesions of chronic glanders that the mere fact of an occupation in any way likely to bring the patient into contact with sick horses, whether as coachman, carman, groom, stable hand, or veterinary surgeon, should bring the disease to the surgeon's mind whenever a chronic inflammatory lesion of the oral or nasal mucosae, or an inflammatory mass in the subcutaneous or muscular tissues, presents itself in such a patient.

Acute and subacute cases do not, as a rule, present such great difficulties in diagnosis; nevertheless, many mistakes have been made. The exanthematous eruption, the appearance of which is almost a certain precursor of death, has been mistaken for small-pox (Bosellini, Stewart, Wherry), varicella (Gutowski), impetigo contagiosa (Post), herpes zoster necrotica (Bosellini), erythema nodosum (Hartge), and anthrax (Bonomé). The general febrile state has been mistaken for typhoid (Buscke, Stewart, Goodall, Collie, Ehrlich, Rémy), influenza (Anderson, Hartge, Gutowski), pyaemia or septicaemia (Post, Bell, Goodall, Parker, Tedeschi, Ehrlich, and Wherry), acute rheumatism (Goodall, Ehrlich, and Wherry), pneumonia (Post, Collie), typhus (Rémy).

It is to be noted that in the literature there has been a failure to distinguish in description between the lymphatic nodes and the true exanthematous eruptions. Many cases of recovery after the occurrence of "lymphatic abscesses" are recorded, but of survival after the appearance of a generalized cutaneous eruption, few, if any. The cutaneous lesions appear as pink papules, which become vesicular and then pustular. In Case i there was never any

close resemblance to small-pox; but it is obvious, apart from the fact that good observers have made the mistake, that confusion might arise.

All authors are agreed as to the difficulty of distinguishing the lesions of chronic glanders from those of the other granulomata, especially syphilis and tubercle, including lupus. As a distinction between glanders and tubercle, both Besnier and Hallopeau mention the rapid progress of the ulceration, and the tendency to spontaneous healing, which characterize the former. Besnier further states that there is no analogy between the profuse suppuration of glanders and the secretion of lupus. For discrimination between chronic glanders and syphilis we have no criteria, since even the fallible evidence often to be derived from therapeutics is in this case ruled out by the fact that of all the drugs vaunted in the treatment of glanders, mercury is the only one for which success can be claimed with any show of reason.

Whilst these remarks apply to chronic lesions of the mucosae, there is still less to be said of cases such as Nos. III and IV. In very many reports mention is made of some peculiar character of the pus. It may be pink, red, grey, or merely a gelatinous material, quite unlike true pus. To find such contents in an abscess occurring in a patient whose occupation and illness had already aroused a suspicion of glanders would, of course, be so far confirmatory, but in itself the phenomenon cannot be regarded as of high importance.

If we appear to lay too much stress upon these points it is because a common termination of a chronic case is, in an acute outburst, fatal from its inception. The interval of quiescence may be a month or two, or ten years. Here, too, we may point out that, judging from the clinical course of Cases III and IV, it would be extremely easy to overlook their nature altogether.

Some authors have referred to "the typical chancre of glanders"; the term is misleading, and is, indeed, not often met with in the most modern reports. In some cases evidence that a given lesion is the infection point is complete; in many presumptive; but in a very great many it is impossible to do more than hazard a guess as to the means of entry of the virus. In some cases of wounds infected direct from an affected animal the initial site has been considered "characteristic" in appearance, but there is no general consensus of opinion as to the characters.

A case very similar to our No. V, in which for a long time extension took place by continuity only, has been described and figured by Besnier in the *Atlas of Rare Skin Diseases;* Hallopeau and Jeanselme, Bonomé, and others have described cases of long duration very similar, but in most of them there have been other lesions to afford some clue to the nature of the malady. Upon this fact—the multiplicity of the lesions—Gabrielides and Remlinger lay great stress as diagnostic, but we think this feature is only reliable in the case of the more acute forms.

The Mallein Test.

In three of our cases diagnostic injections of mallein were given. Of these, only five out of six injections were under proper conditions, but in all a typical reaction followed. The constitutional disturbance was not much more than could be accounted for by the pyrexia. Pain at the point of injection and at the site of the lesion was noticed; in three instances there was vomiting, and in one the malaise and restlessness were such that a hypodermic injection of morphine was given. In one instance there was a definite rigor. In one case the temperature rose in five hours to 104.8°, and fell to normal in another thirty-six hours; an injection given the next day led to an immediate rise to 103.4°, with return to normal in eighteen hours. In the other 3 cases the maximum rise—103.8°, 103.8°, and 103.2° respectively—was attained in ten, fifteen, and eighteen hours, and in all three the return to normal was delayed beyond forty-eight hours. In two instances injections of tuberculin were given as controls, but in neither was there any response. In is noteworthy that all 3 cases were "chronic," and that the most typical reaction was obtained from that of longest duration. In several other cases which turned out not to be glanders the mallein test produced no reaction, including 1 case of generalized tuberculous subcutaneous abscesses, which did give a typical "tuberculin reaction."

The dose we have used in all cases is 10 to 15 minims, and this, though the usual dose for a horse, has not produced any untoward results in non-glandrous cases.

Animal Inoculation.

For practical purposes this is perhaps the most reliable diagnostic procedure. In four of our cases it was tried with positive results, and in one the diagnosis was not arrived at until this was done, it being impossible to isolate any characteristic organism from amongst so many contaminating bacteria that occupied the ulcerated surface (Case V). In these contaminating cases it is better to inoculate an emulsion of the suspected tissue subcutaneously into the abdomen of an adult male guinea-pig; if inoculated intraperitoneally the contaminating germs may cause death from peritonitis before the characteristic enlargement of the testes with acute inflammation and engorgement of the tunicae vaginales is produced. The reaction is noticeable in seven to ten days as a rule, but in some few cases it has been delayed for several weeks (seven in one case reported), and in others it has not been obtained at all, and it must be remembered that the bacilli may be present in too scanty numbers to infect.

Liénaux suggests, with good cause, that the *B. mallei* are not always of equal virulence, and hence a certain number are destroyed in the guinea-pig, whilst others of more active character are capable of producing a positive reaction. In one of his experiments with an attenuated culture a positive Strauss reaction was only obtained after ten days, but a typical growth appeared on potato in three days, and so it is advisable to make cultures on potato simultaneously with the animal inoculations.

Bullock and Twort have also found that the virulence of *B. mallei* obtained from human cases, of which they had five, including two acute, is much greater than that from equines, and they got a rapid positive reaction in two or three days. In our Case V, however, a definite reaction was not obtained until the twelfth day, though in the acute cases the response was more rapid.

Valuable results of experimental inoculation with cultures of *B. mallei* have been worked out by Nicolle, who details the various types of lesions following inoculations into guinea-pigs of different ages and sex. He proved the marked vulnerability of the tunica vaginalis of the adult male, the greater resistance of the female, and the still greater resistance of the young male guinea-pig.* From this it seems feasible to conclude that several animals should be used, and these adult males only, and that varying doses should be inoculated. Further, he showed that the testicular lesion is not the only one of importance, though in the later stages it is a striking one.

Bacteriological Diagnosis.

The *B. mallei* in the lesions are generally very scanty, and even in the acute abscesses it is often impossible to find them, so that in apparently sterile pus it may be recommended to bear glanders infection in mind. The bacilli are difficult to stain, and are Gram negative, and where there is much cell degeneration the deeply-staining detritus masks the bacilli and increases the difficulty. In four of our cases it will be noticed that in films of the pus from the abscesses only one or two bacilli were found after prolonged search (Fig. 6). They stained well with weak carbol-fuchsin warmed for some time, but we found it much more satisfactory to stain with carbol-thionin blue or carbol-gentian violet after a preliminary treatment with acetic acid, and where the cell degeneration was most marked, as in sections, this latter method was most valuable (see Fig. 7); but in most cases equally good results were obtained with a modified Romanowski's stain. The size of the bacilli and the definite beading are fairly characteristic (see Figs. 6 and 7). With careful staining they were found in greater numbers in the lung tissue of our cases than at first appeared.

In contrast to the difficulties of bacterioscopic diagnosis the cultural characteristics are so definite and so constant as to render the diagnosis simple. Smears of pus,

* Since writing the above, one of us (J. M. B.) has met with an, as yet unclassified, streptothrix which caused a fatal suppurative pneumonitis in a man, and which, when inoculated intraperitoneally into guinea-pigs, causes a rapid and enormous enlargement of the testicles, with immobility, etc., and severe general symptoms. The details of this will be published at length later, but it is worthy of note here.

which is generally uncontaminated in the unopened abscesses or farcy buds, on glycerine-agar produce in twenty-four hours a gelatinous confluent growth, and on potato a brownish growth in forty-eight hours, which later darkens, and after some time may become of a chocolate tint. Compared with the brownish growth of *B. coli* it is darker, more gelatinous, and more luxuriant, yet in one of our cases the organism was at first described as coliform. The question of motility is of importance in this respect.

Note on B. mallei.

The *B. mallei* is by all authors said to be non-motile and often showing active Brownian movements. The strains obtained by us were to all appearances, however, actively motile, and many individual organisms were seen to move across the field of vision. Repeated observations strengthened our suspicion that the *B. mallei* is truly motile, despite the fact that no flagella could be demonstrated by any method of staining. Mr. E. N. Nelson has for long held that he can see flagella, and with him we are inclined to agree.

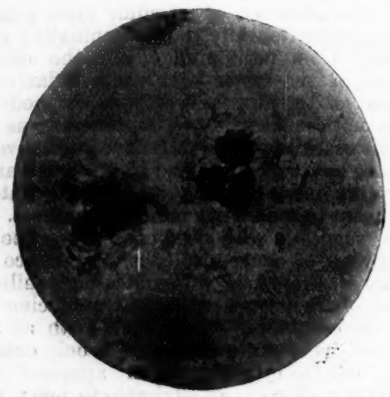


Fig. 6.—Two bacilli, the larger one showing beading, in the pus taken during life from a superficial abscess. (× 1,000.)

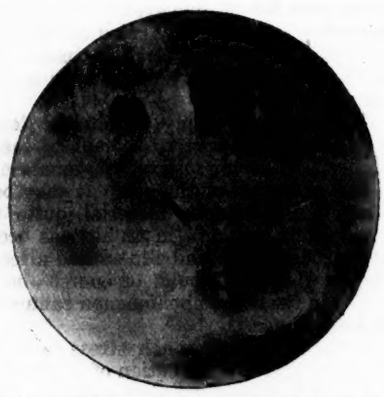


Fig. 7.—Single bacillus seen in focus and two out of focus in section of lung. (× 1,400.)

There is another point that we wish to note concerning the vitality of *B. mallei*. It appears to be generally taken for granted that the organism soon dies out on culture media and when grown for long as a saphrophyte loses its virulence. Our experience with our strains cannot confirm this. A potato subculture from the blood of Case II was kept in the cold incubator for twelve months from August, 1905, and then, even, subcultures from this grew slowly and proved virulent for a guinea-pig. From the organism, reobtained from the animal, subcultures were successively made in November, 1906, January, 1907, and in May, 1907, showing a capacity for remaining alive for months. It must be added, however, that a glycerine-bouillon flask inoculated in May, 1907, failed to give subcultures in August, 1907, the flask containing a prolific mass of organisms arranged in long chains and sometimes branching — a pleomorphism often described. Some of these long kept cultures on potato were inoculated into guinea-pigs in fairly large doses, but beyond raising the temperature and producing some malaise produced no fatal results.

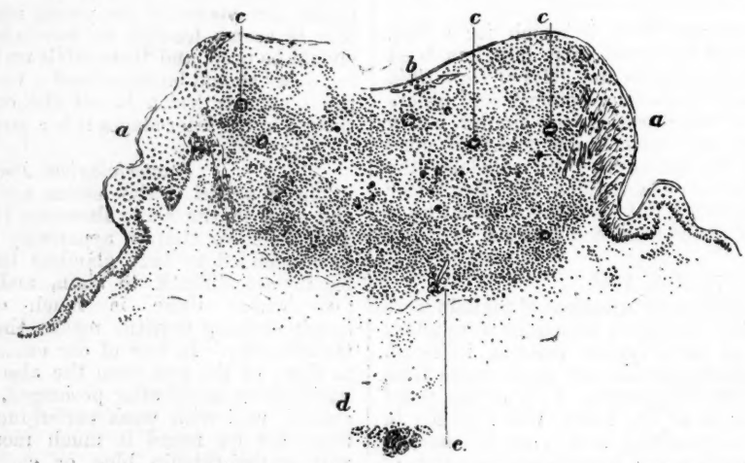


Fig. 8.—Drawing of section of pustule in skin of glanders (Case II). *a*, Thickened epidermis—acanthoric oedema. *b*, Horny layer of epidermis. *c*, Large round bodies containing many round deeply-stained masses probably balloon or swollen epidermal cells. *d*, Sweat gland. *e*, Hair or part of hair follicle from which epidermis has been torn away; cell infiltration consists of round cells (probably polynuclears for the most part). (From a drawing by Dr. H. G. Adamson.)

HISTOLOGICAL DIAGNOSIS.

There is only one feature that may perhaps be regarded as characteristic of glandrous lesions, namely, the peculiar nuclear degeneration known as *chromatotexis*. This, indeed, is found in some other necrotic lesions, but in glanders the process is very considerable and constant, beginning very early, so that in small foci the deeply-staining detritus resulting from this degeneration is a striking feature (Figs. 3 and 5).

The question as to whether the lesions are true abscesses or granulomata is still debated. According to McFadyean the former is the case in horses, whilst Unna describes the lesions in man as consisting of epithelioid cells derived from proliferative connective tissue cells. In our most acute case (I), though polymorphonuclear cells were found in films from the pustules in life, the sections *post mortem* showed cells for the most part with round, indefinite nuclei, which may, of course, have contracted after death. In the more recent lesions in the lungs, however, the polymorphonuclear cells predominated; hence we are inclined to consider the lesions as comparable with local abscesses, with rapid liquefaction and marked chromatotexis, with in the more chronic foci, an additional element in the form of connective tissue cells, due to the proliferative reparative process.*

No giant cells, such as described by others, were found in any of our sections, though the ballooned epidermal cells (Fig. 8) might at first glance be mistaken for giant cells. In Case V, in the light of our present knowledge, we think that the marked chromatotexis in the floor of the ulcer would prevent us overlooking the diagnosis in a similar condition.

BLOOD EXAMINATION.

McFadyean remarks, in discussing the *B. mallei*: "It is a tissue parasite, and in all cases of glanders and farcy in horses the bacilli are almost entirely confined to the lesions and discharges from them; no doubt they are transported by the blood as well as by the lymph, but in horses there is never a septicaemia." Considerable quantities of blood of affected animals have failed to transmit the disease after experimental inoculation, and it is almost impossible to find the bacilli in the blood of acute cases in horses.

Sections of lung in Case II bear out this view. In Case II, the only one in which blood cultures were made, the *B. mallei* were only obtained in the blood drawn shortly before death, and it is most probable that this was merely a terminal infection, such as seen in many other infections. Experimentally, also, the organisms after inoculation into the veins rapidly disappear from the blood and become localized; a somewhat analogous condition was seen in Case II, where the

*Duval and White working recently with experimental glanders support this view.

organisms set up an arthritis early in the course of the illness.

Leucocytosis does not seem to be a marked feature; in two acute cases (Pilcher) there was no leucocytosis, whilst in one of our chronic cases there was a slight increase (19,000), but no increase of the polymorphs; and in an acute case of Wherry's there were 21,000, but he does not mention a differential count.

Agglutination Test.—In horses McFadyean has obtained positive agglutination phenomena in very weak dilutions—1 in 1,600 as compared with 1 in 300 in healthy animals. Dr. Eyre tells us that in 3 cases recently admitted to Guy's Hospital the serums agglutinated *B. mallei* in dilutions of 1 in 100. In our Case II no definite results could be obtained, and various observers have obtained different results; so at present the value of this diagnostic procedure must be regarded as indefinite.

Mode of Infection.

In none of our cases was there definite evidence of the point of inoculation or path of infection, and the general evidence, clinical and experimental, on both these questions is so conflicting that the time is hardly ripe for the expression of decided opinions. The hypothetical paths are by direct inoculation through a wound or by the hair follicles, by inhalation or by ingestion.

Direct wound infection is conclusively proved by laboratory accidents; glanders has been assigned as the most frequent cause of accidental death amongst laboratory workers.

As to the hair follicles, Babes performed numerous experiments on guinea-pigs, rubbing in an emulsion of *B. mallei*, and succeeded in producing infection. Nocard, however, repeated the experiments with indefinite results.

Infection by ingestion has been definitely proved, in horses, by MacFadyen, but the comparative frequency of respiratory lesions and the infrequency of abdominal, in man, suggests that the problem will be as difficult of solution as that which has to be faced in the case of tuberculosis. Gutowski pointed out that ward infection does not occur, and in this connexion we may record that one of our acute cases on several occasions was allowed to breathe through an apparatus containing glycerinated broth, which however remained sterile. It is obvious that no stress can be laid on an experiment under such conditions. The fact remains, however, that contact, not only directly with infected sputum and discharges, but even with soiled fomites, may be dangerous.

Weichselbaum and Phillipowicz have recovered *B. mallei* from the urine, and Cao from the milk of sick mares. Cao also observes that the *B. mallei* remains virulent after passing through the alimentary canal of flies and other insects.

Although it is generally recognized that knackers and others dealing with glandrous carcasses are rarely infected, yet the case is different with man, because the disease is necessarily allowed to proceed to the bitter end; and it is only in the latest stages that the organism becomes generalized in the blood, which is then highly infectious.

Extension from a primary local lesion, if it occurs, does so in the first instance by the lymphatic vessels; and this, unlike the blood infection that may ensue, is not necessarily fatal.

Latency of the bacillus in the tissues is well recognized, for the records show many cases in which entire quiescence was observed for several years, yet admitting of a fatal outburst. Babes states that he found encapsuled glandrous nodules in the viscera—especially the lungs—of knackers and others dying of some other disease, and discusses the question of occult glanders.

The incubation period varies within wide limits. For instance, in the recent Czernowitz laboratory accident the disease broke out amongst several of the staff in a few days after the scattering of the bacilli by the breaking of a centrifuge tube; in Stewart's case, after the autopsy on a guinea-pig, the first symptom appeared in six days; in Pilcher's case, six weeks after a bite by a glandrous horse.

In conclusion, we must express our thanks to Dr. Hebb for much valued advice; to Dr. Colcott Fox for kindly having had made for us the photomicrographs (Figs. 6 and 7); and to the staff of the hospital and to Mr. C. C. Choyce, for permission to make use of their cases.

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ANAESTHESIA IN THE HUMAN SUBJECT WITH KNOWN PERCENTAGES OF CHLOROFORM VAPOUR.*

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INTRODUCTION.

THE theory and practice of anaesthesia are too often spoken of as distinct and even antagonistic entities. This view is founded on a misconception. Theory is based on practice, and on that alone; and if in practice by careful and accurate measurement any facts appear that are not accounted for by the theory, this must be due to some error in the latter.

There is, however, a suppressed premiss in the statement of the case that is often the unconscious basis of such ideas. It does not necessarily follow that the facts observed on healthy animals can be applied without correction to the pathological conditions often met with in the human subject. It is, therefore, by no means waste of time to examine as carefully and accurately as may be, details of anaesthesia in man that have already been carefully studied in the lower animals, and this is what has been attempted in the observations that are recorded in the present paper.

It is, perhaps, a truism to say that our knowledge of any subject is in direct proportion to the accuracy with which exact measurement can be applied to it. Yet this

* Read before the Section of Anaesthetics, Royal Society of Medicine, on December 9th, 1908.

self-evident statement is sometimes lost sight of in cases like the present, where measurement is often difficult and in some cases still impossible. But the ideal should always be kept in mind, and one should not feel satisfied with our knowledge of anaesthesia until we are able to predict exactly what effect will follow from the inhalation and absorption of a known quantity of the drug employed.

We are still very far from this ideal, but in the present paper one of the initial steps is now taken—namely, that of measuring the percentage in the inspired air.

No attempt has been made to estimate the amount of chloroform absorbed or to trace the fate of such absorbed chloroform in the body, though these factors are of supreme importance in the action of the drug. Yet in justification of the limited scope of our subject it may be urged that the percentage in the inspired air is the only factor that is under the direct control of the anaesthetist, and it is the immediate cause of all effects produced.

APPARATUS.

In order to ascertain the strength of the chloroform vapour at any moment it is necessary to deliver this from some form of machine. Two methods are available for the construction of such apparatus. The first—that employed by Snow, Vernon Harcourt, and Levy—is that where the patient draws the air through the apparatus by means of his respiratory muscles, the so-called "vacuum" system. While this method lends itself to the construction of a small and compact instrument it has the disadvantage that it places some obstruction in the way of free respiration. Whether this does much harm or not, it at least introduces an additional factor, and accordingly the second method—which has been used by Dubois, Waller, and Röth-Drager—has been preferred. In this case the mixture is supplied to the patient by mechanical power, the so-called "plenum" system.

The apparatus finally adopted after a long series of trials was of a very simple type. It has been already described in this JOURNAL.[1] Briefly, it consists of a circular copper vessel 5 in. in diameter and 4½ in. deep, which contains 150 c.cm. of chloroform; 1½ in. from the bottom is fixed a shelf closed except for two oblong holes. Immediately above and touching this shelf is a circular plate, movable by means of a hollow rod in the centre, and pierced by two triangular apertures. These can be adjusted by the centre rod so as to expose more or less of the fixed oblong holes in the shelf, and so produce greater or smaller openings into the space below. Air (supplied from a small foot bellows or from an electric fan) enters the chamber by one tube opposite one aperture, and leaves by another tube, opposite the other, taking up more or less chloroform vapour according to the size of the apertures. A thermometer in the hollow rod indicates the temperature of the chloroform below, and a water jacket surrounding the chamber serves to keep the temperature between certain limits.

The first thing to be determined in an apparatus of this kind is the degre of accuracy with which it works under actual conditions of surgical anaesthesia, and this may be a very different thing from the accuracy obtained in a physiological laboratory. In the latter case all that is required to reduce the instrumental errors to a minimum is the careful application of the ordinary principles of physics, but in the anaesthesia of the human subject the first care is the condition of the patient, the second the necessities of the surgical procedure; and it is only when these requirements are satisfied that the observer can take the steps necessary to test the accuracy of the apparatus.

The possible errors can be classified under three headings:

1. Errors of the method used in testing.
2. Errors of the chloroform apparatus itself.
3. Unknown errors due to the necessities of the surgical procedure.

1. *Errors of Method.*

The percentage of chloroform was determined by means of the densimetric method introduced by Waller and Geets.[2] Levy[3] has shown that this method gives practically identical results with that of the combustion method of Vernon Harcourt.[4] The maximum error under ordinary conditions does not exceed 0.1 per cent.—that is, 2 per cent. vapour may be read by the densimeter as 2.05 or 1.95 at the worst. As the smallest variation that can be perceived on the patient is 0.25 per cent., this limit of accuracy is amply sufficient.

2. *Errors of the Apparatus itself.*

The following points were specially tested:

(*a*) *Errors of Repetition.*—Repeated determinations were made of percentages nominally the same. The results were:

1st Reading.	2nd Reading.	3rd Reading.	4th Reading.
Per cent.	Per cent.	Per cent.	Per cent.
(*a*) 1.15	1.0	1.15	—
(*b*) 1.3	1.15	1.35	—
(*c*) 1.65	1.6	—	—
(*d*) 2.5	2.4	2.4	2.4

These readings combine both possible errors, yet the greatest variation of any one reading was 0.2 per cent., and the usual variation about 0.1 per cent. or less.

(*b*) *Temperature Errors of the Densimeter.*—Waller and Geets give a formula for this correction, but as the conditions were rather different in the present series of experiments, direct determinations were made. The following values were found:

Temperature Fahrenheit.	Gram.	Mean Percentage Correction.
46.0°	+0.0025	+0.23
44.5°	+0.0020	
66.6°	+0.0010	+0.075
65.6°	+0.0005	
81.0°	−0.0010	−0.2
81.2°	−0.0015	

Room temperature, 70° F.

These corrections have, therefore, been applied at the appropriate temperatures.

3. *Variations in the Air Supply.*

In the special form of apparatus used, air is pumped through the chloroform chamber in a steady stream by either a foot bellows or else by an electric fan. Both sources are apt to vary, so that the point was specially examined.

Air in Litres per Minute.	Percentage of Chloroform.	Mean.
20.0	2.15, 2.05	2.10
12.5	2.15, 2.25, 2.20, 2.15	2.19
8.5	1.90, 2.00	1.95

The percentage is therefore practically constant between 20 and 8.5 litres per minute.*

Below 8.5 litres per minute the percentage falls, so that if the assistant forgets to pump or the electric fan works badly no harm is done. The usual air supply is between 16 and 20 litres per minute; as it is given in a constant stream it is required to be double the normal ventilation of the lungs, which is about 10 litres per minute for the average adult.

4. *The Presence of Impurities in the Chloroform.*

After the apparatus has been in use for two or three hours the chloroform is often turbid from the condensation of the water vapour in the air. This in the quantities present causes a very slight error.

	Normal.	With Water.
(*a*)	2.55	2.50
(*b*)	1.1	1.15
(*c*)	2.1	2.05

* A. G. Levy points out (*Lancet*, May 27th, 1905) that the percentage of chloroform will be independent of the air current when in any machine the stream of air is divided, so that part passes over the liquid chloroform and part direct to the patient, the perfection of adjustment depending on the relative velocity in the two paths and the amount in which viscosity comes into play in the chloroform airway. In his apparatus, which is of the "vacuum" type, the percentage was constant between the limits of 33 litres and 9 litres air stream per minute.

5. *Unknown Errors in the Operating Theatre.*

Finally, it might be said that under the exacting conditions in actual practice the apparatus might develop unknown errors. A typical case was therefore selected, and in the laboratory was rehearsed again in dummy, the conditions being exactly the same, except that a densimeter bulb was put in place of the patient.

Theatre Reading. Per cent.			Laboratory Estimation. Per cent.
1.0	...	...	1.1
2.5	...	...	2.4
2.5	...	...	2.55
2.5	...	...	2.4
2.0	...	...	2.1
1.75	...	...	2.7

This case is graphically represented in Fig. 1.

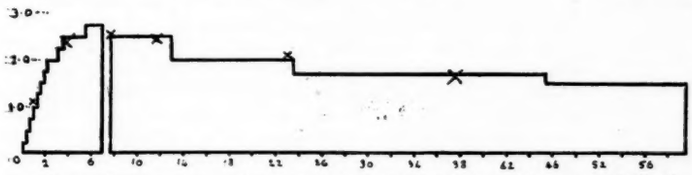

Fig. 1.—Case XXXIII. Boy, aged 9. (Undescended testicle, Mr. Collier.) Dr. Beaumont. Repetition of curve. Crosses mark the actual estimations in the laboratory.

TYPICAL CASES.

This preliminary work being disposed of, it was then possible to study the effect of known percentages on the human subject with some confidence that the nominal amounts were really administered.

The records of the first 50 cases form the basis of this communication. While this number may seem very small to the professional anaesthetist, who counts his administrations by thousands, and while it certainly is too small to allow any conclusions to be drawn as to the frequency of the more unusual occurrences, yet it is quite sufficient to provide a good deal of information on the more common features of anaesthesia in the ordinary type of case.

Full notes were taken of each administration in the customary manner. But on reflection it became evident that as two factors were accurately known—(*a*) the percentage inhaled and (*b*) the time—it was possible to plot these figures on squared paper so as to show the progress of anaesthesia in a graphic manner. Time in minutes is measured along the abscissa and the percentages of chloroform along the ordinates, and Fig. 3 may be taken as a typical curve from an average case.

Such a curve deserves a little study. The first thing that is evident is the little break in the administration that occurs about the eighth minute (more or less according to circumstances). This represents the passage of the patient from the anaesthetizing room to the operating theatre, and conveniently divides the record into two parts—(1) the period of induction, (2) the period of surgical procedure. Theoretically this break is a disadvantage, and it has always been made as short as possible. It serves, however, to mark the point at which the patient is ready for operation, and so it has been taken as the end point of the induction period.

During this time the curve indicating the percentage rises gradually, and in the majority of the cases a regular routine was followed. An arbitrary rule was made that the percentage should have the same figure as the time; in other words, during the first quarter-minute the percentage was 0.25, at the half-minute it was 0.5, in one minute it was 1, in two minutes 2. After this point the rise was made more gradually, and depended on the condition of the patient; in an average case 2.5 per cent. was reached in three minutes, and if necessary 3 per cent. in four minutes.

Several considerations determined this routine. It is necessary to remember, on the one hand, that a high percentage—over 2—is dangerous in the early periods of anaesthesia, as Waller has shown. The absorption of chloroform is most rapid in the second minute (Brodie and Widdowes), so here again a low percentage is indicated.

Further, if 2 per cent. is given at once, the patient is apt to cough and struggle, so that it is necessary to begin slowly. On the other hand, time is valuable; for most cases eight to nine minutes should suffice for induction, and no surgeon likes to wait for twenty minutes while the patient is being prepared for an operation lasting but ten. There are other reasons, which are under investigation at the present time, why it is undesirable to prolong the period of induction further than safety dictates. So that the apparently arbitrary rule that was adopted is not without justification on theoretical grounds, and experience proved that it worked very well in practice. The patients go under very evenly and gradually, there is no discomfort, and there is a marked lessening of the usual struggling or excitement; very often there is no struggling at all.

It is not possible yet to state definitely that this arbitrary rate is invariably safe, as the present series is too short to give definite data, but no sign of danger was to be seen in the induction of any of the cases. Sometimes a slower rate was used with good results, especially in very thin nervous subjects and in children. In the earlier cases this slower rate was tried in ordinary cases, but here no advantages were seen, and many disadvantages, so that the arbitrary rate was finally adopted.

The patient was usually ready for operation in about eight to nine minutes, the minimum time being six minutes, the maximum twelve and a half (Fig. 2), so that anaesthesia with these known percentages need not take an unreasonable time.

It is possible to make some interesting comparisons with the "open" method. It is usually supposed that this is specially expeditious, but in the cases I have actually timed the induction period lasted from eight to ten minutes, sometimes longer. To judge from the condition of the patient, one would guess (it is little more) that ordinarily during this time the open cone gives more than 2 per cent. in the first two minutes, and less than 3 per cent. in the last four minutes. Exact determinations

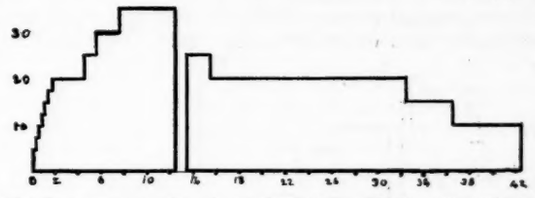

Fig. 2. Case XVI. Female, aged 30 (Appendicitis. Mr. Clayton-Greene.) Dr. Beaumont. Stout patient taking much chloroform.

of what is really given would be of great interest. One would expect to find that while the skilled professional anaesthetist would give percentages not differing greatly from what has been suggested as the optimum, the less skilled learner is much less happy in his choice.

The second half of the curve, that which has been termed above the "period of surgical procedure," is usually (as is well shown in Fig. 3) marked by a gradually decreasing series of steps; 2 per cent. is generally required up to about the twentieth to the twenty-fifth minute

Fig. 3.—Case XXVII. Female, aged 37. (Tenoplasty, Mr. Pepper.) Dr. Beaumont. An average case. Figures on the ordinate represent percentages of chloroform. The abscissa shows the time; each division is equal to two minutes.

(Figs. 1, 3), then 1.5 per cent. to the forty-fifth minute, but the percentages in this part of the curve vary greatly. In Case XLIX, for example, 1.5 per cent. was used from the twenty-first minute till the sixty-sixth; in Case XXX, 0.75 per cent. was given from the sixtieth minute to the one hundred and thirty-sixth, but in the majority of the cases the values are of the order given. As in any other mode of administration the percentages must be increased a little if the patient vomits, and it is well to increase the amount slightly before the skin is sutured if the

patient is on a low percentage, or if, as in gastro-enterostomy, special relaxation is required; but usually this precaution has not been necessary.

Individual Variations and Unusual Cases.

The description given above applies to the great majority of the fifty cases. While it is true that no two cases are exactly alike, yet when the patient is an average specimen of adult age and the operation is not one of especial difficulty, it is found the anaesthetic curves show great similarity, and it is not necessary to describe each one in detail. One can therefore turn to the next chapter—namely, the consideration of the individual variations and the unusual cases. These can be classified under four main headings: 1. Age. 2. Build. 3. Alcoholism. 4. Operation required.

With regard to these subdivisions, it will be necessary to have a much larger series of cases to enable very precise conclusions to be drawn, still certain preliminary observations can be ventured upon with a considerable degree of accuracy.

1. *The Effect of Age.*

No very old persons were included in the series, but there was a very definite little group of five children, with an average age of 10 years, which can be compared with the typical adult. As a rule less chloroform was required

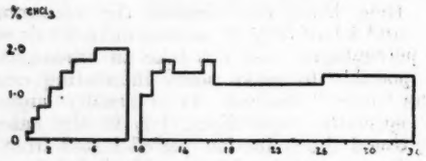

Fig. 4.—Case XI. Boy, aged 11. (Wiring fracture, Mr. Clayton-Greene). Dr. Beaumont. Takes less chloroform than the type.

(Fig. 4); one case, however, took an amount quite equal to the normal.

2. *Build.*

This appeared to have a marked influence. Fat persons took much more chloroform than thin, and Figs. 2 and 5

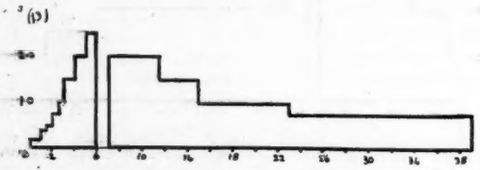

Fig. 5.—Case XIII. Male, aged 34. (Appendicitis, Mr. Clayton-Greene). Dr. Blumfeld. Slightly built and thin. Took very little chloroform.

are excellent examples. These cases had the same operation, on the same day, performed by the same surgeon, and the amount of chloroform required is much more in the case of the stout woman than the thin man. Of the 50 cases, 5 were distinctly spare and 4 very fat, and the same rule held throughout.

It must be remembered, however, that the number of cases is too few to enable a general inference to be made, and Dr. Levy has drawn my attention to a thin patient that took a quite abnormal amount of chloroform, so that other factors must have some influence on the result. Case III is, perhaps, an example of this—there was a slight tendency to goitre, and the percentage used was much less than the average.

The subject is one of considerable interest from the theoretical point of view, and experiments on the subject are in progress. The objection might be raised that all fat hospital patients are so because they are alcoholic, and should therefore be included in the next section, but on this point no certain information was forthcoming.

3. *Alcoholism.*

These persons took more than the average, even when not of especially stout build (Fig. 6).

One patient, a big, muscular man of 34, alcoholic, and requiring immediate laparotomy as the result of an "accident" (he had been stabbed in the abdomen just below the liver), took so much chloroform that the machine, even at 3.5 per cent. did not give enough, and the case was finished with the cone (Fig. 7). Here the open method must have yielded more than 4 per cent. at the least.

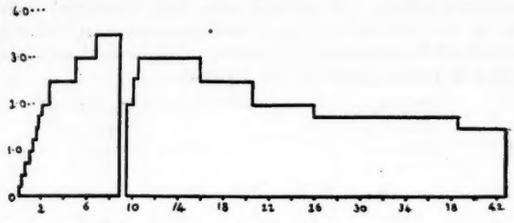

Fig. 6.—Case XXIX. (Ventral hernia, Mr. Lane.) Dr. Beaumont. Alcoholic patient of average size. Takes more chloroform than the type.

4. *Effect of the Operation.*

The most obvious variation is shown where a very prolonged operation is necessary. Case XXX, lasting two and a quarter hours, was kept perfectly anaesthetized at 0.75 per cent. for the last ninety minutes.

A very important point was observed by Dr. Beaumont, which had been previously suspected, but of which the proof had been wanting. A patient is being kept quite evenly under, and a steady percentage—say 1 per cent.—has been given for some time. The operation procedure is of an ordinary type, and the corneal reflex is just absent. Now if the surgeon, by pulling on the parietal peritoneum, excites violent afferent impulses, the corneal reflex comes back, and the patient becomes less deeply anaesthetized even if the percentage remains the same.

Dr. Mathison and I verified this on animals, and we observed in addition that the blood pressure falls, and the respiration is quickened and increased in depth.

The inference is important. Ordinary anaesthesia is due partly to the direct action of the drug and partly to a condition closely analogous to sleep. Violent afferent impulses remove this latter factor, exactly as in poisoning by morphine, where the patient can be roused by shaking, to sink back into narcosis when the stimulus ceases.

The reflex quickening and deepening of respiration is also worth noticing from a practical standpoint. The patient in this condition is taking in more chloroform than before, and every anaesthetist is aware of the possibility of an overdose being given under these circumstances.

The account of this series would not be complete without the notes of those cases where, by mistake or other cause, the result was not what was expected. Four cases were abnormal in this respect. Case XXXIV (Fig. 7)

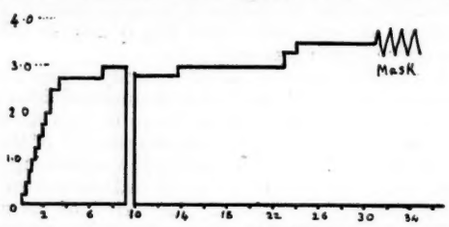

Fig. 7.—Case XXXIV. Man, aged 34. (Exploratory laparotomy, Mr. Pepper.) Dr. Beaumont. Case requiring more than 3½ per cent.

has been already referred to, and it must be admitted that here the machine was at fault; such cases can only be dealt with by special means.

In Case XII induction was completed by the open method, but here the standard rate of increase was not adopted, and the case should hardly be counted a failure.

In Case XXXVIII death occurred two hours after the patient had been removed from the theatre. The case

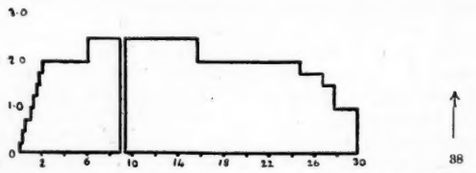

Fig. 8.—Case XXXVIII. (Hydrocephalus.) Male, aged 22. Artificial respiration at arrow (38th minute). Death two hours after removal from theatre (2 hr. 43 min.).

was one of suspected cerebellar tumour; on opening the cranium no tumour was found, and the patient's condition

became so unsatisfactory that the anaesthetic was discontinued, and the incision rapidly closed. Eight minutes after this artificial respiration became necessary, and after two hours the heart stopped. *Post mortem* there was great dilatation of the ventricles of the brain, and the existence of basal meningitis prevented the opening of the cranial cavity relieving the pressure.

Case x presented some interesting features. The anaesthetist was using the apparatus for the first time, and

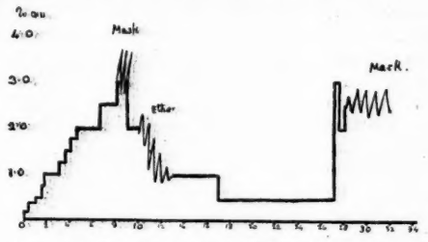

Fig. 9.—Case x. Man aged 36. (Ventral hernia, Mr. Clayton-Greene.) Description in text.

found some difficulty in translating his knowledge of anaesthesia into the percentages given by the machine. Induction was too slow (it was before the standard rate had been adopted), and when the patient was moved to the theatre a mask was placed over his face in transit. This evidently gave a higher percentage than was expected, and the result was that after a latent period of one minute the breathing became embarrassed, and artificial respiration had to be performed, ether being used to keep up anaesthesia. The patient came round in a very satisfactory manner, and then was given 1 per cent., and later 0.5 per cent. This latter amount, as can be seen from the other curves, was much too little for the stage of anaesthesia, and the patient began to recover consciousness; 3 per cent. was then hastily given, then 2 per cent., and finally the machine was abandoned and the mask used to finish the operation. The difficulties met with were evidently the result of the use of an unfamiliar method, but one valuable piece of information was disclosed, namely, that the effect of an overdose is not immediately seen, requiring about a minute to become evident.

CONCLUSIONS.

There are many things observed from time to time in this series that fall under the class of unmeasurable phenomena. It is hoped that future work may remove at least some of these into the category of accurate measurements, when they can be considered with more certainty than is now possible. Particularly would one wish that numerical values could be assigned to the individual variations and to the post-chloroform effects that are now so meagrely dealt with. But, from the facts recorded above, the following points may be noted as reasonably certain.

1. Anaesthesia with known percentages of vapour is in man at least as easy and certain as by the ordinary method, even when the latter is carried out with the greatest skill.

2. If it is desired to induce anaesthesia in from eight to ten minutes, the ordinary adult must be given percentages rising to 2 per cent. in two minutes, then to 2½ per cent. in three minutes. This amount usually will suffice. There is no objection to raising the percentage to 3 per cent. in five minutes (*not sooner*) if it is required, *provided due care is exercised.*

3. When induction is completed, 2 per cent. is usually ample, gradual diminution to 1.5 per cent. and 1 following in about twenty to twenty-five minutes, and the anaesthesia can be maintained in this way much more easily and regularly than by the open method.

4. Children generally require less than the above amounts, 2 per cent. for the induction and 1.5 per cent. for the later stages. Some thin adults will also require less than the average, some fat, muscular, or alcoholic adults more, but the data are not sufficient to furnish more precise rules.

5. From the above it is evident that the general features of anaesthesia are the same in man as in the other mammalia. Minor points of difference are seen in the greater individual variations and in the percentages required, 2½ per cent. in man being approximately equal to 2 per cent. in the cat. When due allowance is made for these differences, it is legitimate to apply the conclusions deduced from experiments on animals to the human subject. When it is remembered how conclusively Waller has shown the much greater safety of a known percentage in animals, the importance of the inference can be seen.

Finally, it is again my pleasant duty to convey my thanks to my colleagues at St. Mary's Hospital, who have in every way given me the kindest assistance. Particularly are my acknowledgements due to Dr. Blumfeld, Dr. Collum, and Dr. Beaumont, to whom the credit of the practical success of the method largely belongs.

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ATROPHIC RHINITIS COMPLICATED BY MASTOID ABSCESS AND EXTRA-DURAL ABSCESS.

BY FRED. STOKER, M.B., F.R.C.S.EDIN.

So far as I am aware atrophic rhinitis is not a common cause of mastoid suppuration, particularly in the absence of signs of middle-ear suppuration.

Mrs. M. A. S., aged 30 years, came to me on November 5th, 1908, complaining of pain over the mastoid and frontal areas. She had had atrophic rhinitis for twelve years, and had been treated in various ways without any benefit. The right ear had been partially deaf for four years, the deafness coming on gradually. She had had no pain in the ear until lately, and never had otorrhoea according to her own, her mother's, and her husband's testimony. No history or signs of syphilis or tubercle.

On November 5th she complained of intense pain over the right mastoid and frontal areas, tenderness over the same and on pressure on the right tragus. The post-auricular gland was enlarged, but as her head was infested with pediculi great weight was not attached to this, particularly as she said it had been in much the same condition for months. Temperature 103.5°, pulse 120. No rigors or signs of intracranial mischief. Both nostrils were wide and partly covered with stinking crusts. The left inferior turbinal had been removed. The septum was deflected to the right. By posterior rhinoscopy the Eustachian orifices were seen to be dilated and the walls and roof of the naso-pharynx dry, glazed, and covered with adherent crusts. On examining the right ear no perforation could be seen in the membrane, which was opaque, thick, white, and immobile with Siegle's speculum. Rinne's test was negative; the watch could not be heard at all; Weber's test was referred to the right side. There was no redness, swelling, or oedema over the mastoid process nor was the auricle displaced.

Leeches were applied in front of and behind the auricle, followed by large fomentations. Drops of a solution of cocaine and ac. carbolic. (āā gr. v) in glycerine (ʒj) were instilled into the ear and a purgative given.

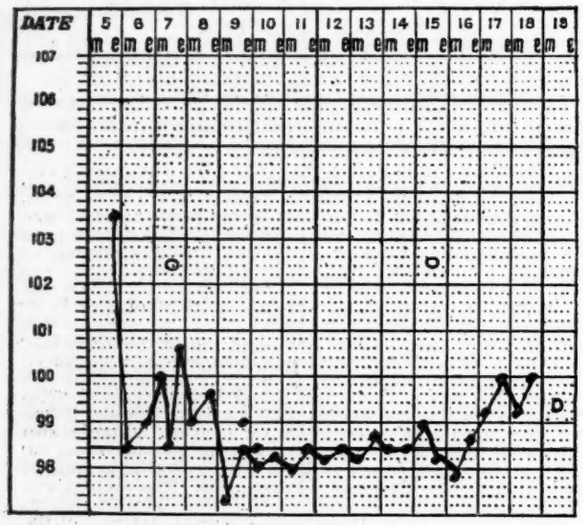
The patient felt much relieved, had a fairly good night, and next morning (November 6th) the temperature had fallen to normal, the pulse to 96. She still, however, had a great deal of pain and tenderness. The same night she became much worse, and a swelling became apparent above and behind the auricle, displacing it downwards and outwards. Operation was advised, and early next morning (November 7th) the mastoid antrum was opened, giving exit to over a drachm of thick yellow pus. Considerable bone destruction had gone on posteriorly, therefore the lateral sinus was exposed, and although there were some granulations on its external aspect, it was not thrombosed. The mastoid cells were thoroughly opened up, the mastoid antrum, almost as large as a Barcelona nut, was curetted, the patency of the aditus assured, and the cavity packed with gauze. The temperature, taken immediately before operating, was 100° F.; after the operation it was normal.

From this time until November 13th, she did well generally, except that the pulse was rapid (see chart), but still complained of intermittent frontal pain and tenderness. On this date facial paralysis of the right side was noticed, but it was by no means marked. I considered it might be due to inflammatory thickening near the stylo-mastoid foramen in the dearth of other symptoms, and could not decide that the head pain was due to intracranial mischief, as she had no other signs of such trouble, such as rigors, vomiting, optic neuritis, spasms of limbs, vertigo, or the pulse or temperature of brain or meningeal disease, although the two last symptoms are known to be uncertain quantities. Her mental condition was clear and alert, but she was very restless.

On November 14th the facial paralysis was worse, and at night the pain was intense, and had extended over the right side of the head. There was tenderness on pressure over the squamous portion of temporal bone. The temperature was normal, and the pulse 110. There was no vertigo or other signs of involvement of the intracranial portion of the auditory

nerve, therefore it was concluded that the paralysis was due to pressure on the facial nerve in the middle ear, where possibly the bony wall of the aqueduct of Fallopius was deficient. Extradural abscess over the tegmen tympani was considered as a probable solution of the cause of pain, and on November 15th the previous operation was extended and the complete mastoid operation performed. The middle ear was filled with granulations, and no trace of the ossicles could be seen. The cavity in the bone was enlarged by cutting upwards and the middle fossa opened. The dura was covered with granulations but did not bulge. A probe passed under the dura in a forward and inward direction entered an abscess cavity ¾ in. from the opening, and about 1½ drachms of thick, yellow, foul pus escaped. Good drainage was secured and the wound gently packed with gauze and drained posteriorly. The mastoid wound was also packed and drained through the auricle, from which a flap was cut. The temperature and pulse before operation were 99° and 100 respectively; after it they fell to 98.2° and 72. The patient became exceedingly restless in a few hours, having to be held down in bed; ¼ grain of morphine was given hypodermically and secured sound sleep for eight and a half hours.

November 16th. Much quieter, but still restless; slow cerebration; no pain in head; pupils equal and active; some stiff-



O. Operation. D. Death.

ness of back of neck; both knee-jerks very active. No other signs. Basal septic meningitis diagnosed and bad prognosis given; pulse 84, temperature 97.9°; facial paralysis much improved.

November 17th. Pulse 104, temperature 100°. Drowsy, restless, and irritable, reminding one very much of the picture of the first stage of cerebral irritation. Has vomited a little (one mouthful) once without retching. No pupil disturbance or other cranial symptom, except those present yesterday. Facial paralysis scarcely perceptible; taking nourishment fairly well.

November 18th. Cannot be roused. Conjunctiva insensitive. No squint, pupils equal. Pulse 132, respirations 46, no stertor.

Later. Pulse 144, respirations 48 and of Cheyne-Stokes type at intervals, temperature 100° F. Perfectly quiet, with an occasional gentle movement of the hands and arms, not at all convulsive in character.

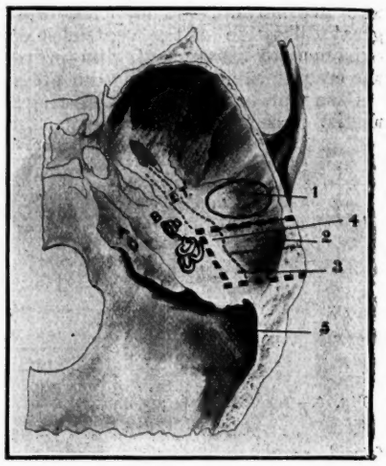
November 19th. Died quietly at 8.30 a.m.; no autopsy obtained.

The infective process in this case had evidently passed from the naso-pharynx to the middle ear and destroyed the ossicles, and had also invaded the antrum and gradually rarefied the mastoid bone. No symptoms occurred, however, until the aditus became blocked with granulations or swollen mucous membrane, as until then a free road was available into the naso-pharynx for the products of inflammation. When the block occurred the symptoms appeared—the result of tension.

When the signs and symptoms set down as characteristic of intracranial disease, such as rigors, vomiting, optic neuritis, pupil changes, convulsions, hydrocephalic cry, etc., are absent, one is liable to be lulled into a false sense of security. Until the last two days of life of the patient whose case has been described, *restlessness* was the most noteworthy symptom. It was characterized chiefly by the continual efforts of the patient to get up on her hands and knees; she would stay in that position for a moment and lie down again. This sequence would sometimes occur five times in as many minutes.

It would undoubtedly have been better in this case to have explored the middle fossa at the time of the first operation, as well as the lateral sinus. This procedure would not have unduly prolonged the operation, and much valuable time would have been saved.

It has since appeared to me that a more effective route for draining the floor of the middle fossa might be obtained where the complete mastoid operation is done, if the infero-lateral opening usually made was continued inwards and forwards by removing the roofs of the external meatus, middle ear, attic, and antrum. The external semicircular canal would not be in danger if a bent probe were kept over it, and the others could be safeguarded by cutting, as before noted, inwards and forwards. (See figure.)



In the above diagram 1 corresponds to area over glenoid cavity; 2, to area over external auditory meatus; 3, to area over mastoid antrum; 4, to area over middle ear; E T, to area over Eustachian tube; B, to area over internal ear; 5, to position of lateral sinus. The area outlined in coarse is that to be removed.

A CASE OF OEDEMA WITH RESOLUTION BY URINARY CRISIS.

BY

H. D. ROLLESTON, M.D., F.R.C.P., SENIOR PHYSICIAN TO ST. GEORGE'S HOSPITAL, and F. L. GOLLA, M.B., M.R.C.P., ASSISTANT PHYSICIAN TO ST. GEORGE'S HOSPITAL.

THIS case of what may be called a urinary crisis in a man with chronic parenchymatous nephritis is worth recording, if only on account of the phenomenal loss of 4 st. 3 lb. in four days coincident with the disappearance of oedema.

The patient, a man 27 years of age, got wet through twelve days before admission; nine days before admission he had abdominal pain, diarrhoea, sickness, and malaise; a few days later oedema was noted, and one day before admission phlebitis of the left thigh appeared. Eight years ago he had had an attack of kidney disease with oedema. On admission on July 11th, 1907, he had oedema of the legs and lower part of the abdomen, and thrombo-phlebitis of the left femoral vein. The urine—specific gravity 1028—contained a considerable amount of albumin, and showed diminution of chlorides, but there were no casts or blood. There was no hypertrophy of the heart, and the blood pressure was 100 mm. of mercury.

The phlebitis soon subsided, but the general oedema increased. On July 26th he weighed 11 st. 12½ lb.; on September 9th, 12 st. 1 lb.; on September 14th, 12 st. 10 lb.; on October 10th, 13 st. 11½ lb.; on October 16th, 14 st.; and on October 23rd, 13 st. 7½ lb. The average amount of urine passed was about 30 oz., and the intake of fluid was restricted for most of the time to 60 oz. From the time of his admission various means of reducing the oedema were employed, but without effect. He had successively and in different combinations theocin, caffein, hot air baths, pil. digitalis co., puncture of the legs. For a period of four weeks, when in the summer Dr. Spriggs looked after the patient, the amount of fluid taken was not restricted. These measures did not have any beneficial effect. On October 5th he developed an attack of cellulitis of the left groin and lower part of the abdomen on the left side, which soon passed off. On October 16th his weight, as already stated, was 14 st.; it then slowly decreased, and a week later (on October 23rd), when it was 13 st. 7½ lb, the amount of urine suddenly increased from 48 oz. in twenty-four hours to 98 oz., and on the succeeding days was 112, 166, 180, 160, 204, 112, 138 oz. The hot-air baths were then stopped (on October 30th), and the amount then fell to 84 and 60 oz. on October 31st and November 1st; by this time the oedema had completely disappeared. On October 31st he weighed 9 st. 4 lb., having lost 4 st. 3 lb. since October 27th, and, after losing 2 lb. more, his weight increased to 9 st. 6 lb., when he left the hospital free from oedema on November 12th. After the sudden disappearance of oedema he

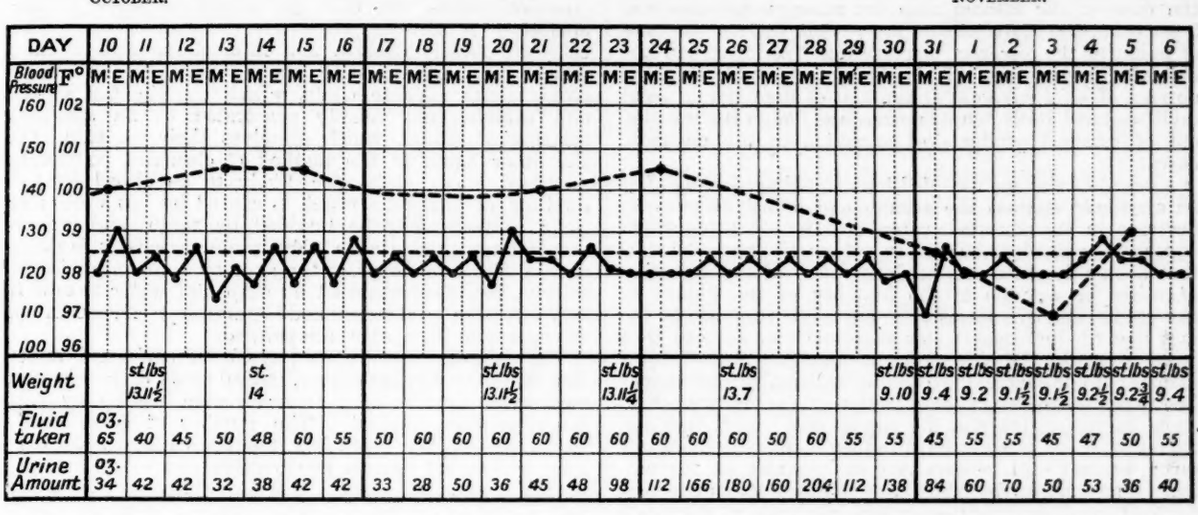


Chart showing weight of patient, amount of fluid taken, and of urine excreted in the twenty-four hours, and temperature (continuous line) and blood pressure (interrupted line), of a man with chronic nephritis who lost 4 st. 3 lb. in weight and extensive oedema in four days.

had some slight headache and felt weak, but did not suffer from thirst.

The loss of over 4 st. in four days was so remarkable that the weighing machine was carefully tested in order to exclude any fallacy, but it was perfectly accurate. The alteration in the man's appearance produced by the disappearance of the oedema was very remarkable. In 1905 Dr. Atlee and one of us (H. D. R.) recorded a case of a man with chronic nephritis who lost 4½ st. in weight in sixteen days, or at the rate of 4 lb. a day, as the result of disappearance of oedema and diuresis, which was then ascribed to the use of caffein citrate.[1]

To arrive at some understanding of the nature of this process of resolution of oedema by urinary crisis, it is necessary to recapitulate briefly the following points in the history of the above case. The patient had been given hot-air baths daily from October 15th. On October 16th his weight was 14 st. The baths caused only very moderate sweating, and during the next seven days the weight diminished only by 2½ lb. As will be seen by reference to the table, the urine fluctuated during this period between 38 to 50 oz., and similar fluctuations had been the rule during the preceding three weeks. On October 22nd the increased excretion began and continued for eight days, returning to about the normal excretion on the tenth day, whenceforward it remained fairly constant, about a mean of 56 oz. From October 23rd till October 30th the patient lost 56 lb. in weight, and, inasmuch as he still continued to assimilate an ample milk diet, the whole of the loss of weight may safely be attributed to the subsidence of the oedema. During this period the excess of urine excreted over the ingested fluid, calculated at a mean specific gravity of 1008, only accounts for a loss of weight of 39 lb., the remaining 17 lb. must therefore be accounted for.

During the period under consideration the bowels were constipated, and only open on alternate days, the faeces being very hard and firm. Since the faecal evacuations would not account for any appreciable loss of fluid, it is obvious that the loss of weight must be attributed to the increased secretion of sweat, which during this period was very profuse; the patient lay in a constant bath of perspiration, and his sheets had to be changed frequently. It is true that during the whole of this period the hot-air baths were continued daily, but the loss of weight due to the influence of the baths has been shown to have only averaged 3 lb. in seven days before the onset of the crisis, so that during the crisis the loss of weight by sweating must have averaged 2½ lb. a day.

The blood pressure was recorded at intervals during the whole period of his illness, and was practically stationary at 140 mm. Hg till the day after the onset of the crisis, when it began to fall, reaching 130 mm. Hg on the fourth day, at which point it remained stationary till the patient's discharge. The cause of the subsidence of the oedema cannot therefore be sought in an increased activity of the heart, nor can the fall of blood pressure, coming as it did after the first day of the crisis, be interpreted as other than that due to relief of the peripheral constriction caused by the subsidence of the oedema. Unfortunately during the crisis it was not possible to carry on observations on the urine other than a perfunctory record of the specific gravity.

The case is of interest on account of the light that it throws on the problem of oedema. The well-known *verdünnungsversuch* of Kövesi and Róth-Schulz[2] has directed attention to the incapacity of the nephritic patient to deal with increase of the water ingested. These authors consider the inability of the kidney to deal with increased amounts of fluid, as evidenced by the insufficient increase of diuresis and diminution of molecular concentration, to be an almost constant phenomenon in cases of parenchymatous nephritis. Cases occur in which the kidney shows an ability to deal with increased ingestion of water hardly below that of the normal kidney, and v. Noorden[3] has shown that in such cases, in spite of their efficiency in this direction, there may be a well-marked oedema. Though oedema must be, of course, an expression of the retention of water, such retention may occur in spite of the ability of the diseased kidney to deal with an increase of water ingestion as efficiently as the normal one. A survey of the charts of this patient during the several weeks preceding the crisis gave no indication of considerable inability to deal with the slight increases of ingested water that had occurred during the course of his dietary, and, in order to set the question at rest, it was decided a month after the occurrence of the crisis to subject him to the *verdünnungsversuch* of Kövesi and Róth-Schulz.

A case of syphilitic nervous disease with normal kidneys and of about the same weight was selected for comparison and investigated by one of us (F. L. G.). The results are summarized in the following table:

	Normal.	Nephritis.
8 to 12 a.m. ...	70 c.cm. passed; Δ 2.05	115 c.cm.; Δ 1.75
1 to 2.30 p.m. ...	Given 1,200 c.cm. soda water	—
3.15 p.m.... ...	160 c.cm. passed; Δ 0.80	200 c.cm.; Δ 0.75
4.15 p.m.... ...	200 c.cm. passed; Δ 0.64	120 c.cm.; Δ 0.8
5 p.m.	150 c.cm. passed; Δ 0.15	94 c.cm.; Δ 0.12

Δ = freezing point of urine. After about three hours diuresis ceases.

The mean results show that in this case of nephritis there appeared to be no incapacity to deal with a large increase of ingested fluid. In both cases, when the mean nitrogen excretion was taken on days when the total fluid diet was 700 c.cm., and on a day when the fluid was increased to 2,300 c.cm., there was an increase of the total

nitrogen and chlorides during the period of diuresis. In the case of the normal man the nitrogen increase was 5 per cent., and the chlorides 2 per cent., and in the case of nephritis the nitrogen increase was 7 per cent. and the chlorides 3 per cent. It is therefore possible that the absence of an equivalent diminution of the freezing point in Kövesi and Róth-Schulz results was due to the washing out of retained products of excretion in the nephritic cases.

A case like the one recorded here would apparently offer an argument against the attempts to reduce oedema by decrease in the ingested water, and indeed there would appear to be much to be said in favour of Strauss's[5] view that such a decrease may be dangerous. If the retention of water be not due to the inability of the kidney to excrete it—and this seems to be proved in this case by the fact that the increased water excretion was effected to a great extent by the skin—such a retention is probably a response to the increased osmotic tension of the tissues due to retained products of excretion. It is not enough to show, as v. Noorden and his pupils[4] have done, that the excretion of solids is not impaired by restricting the water given, we may still be depriving the organism of the protective mechanism by which the retained solids are prevented from disturbing the normal condition of the tissue cells, and such treatment may precipitate the onset of uraemia.

As to the cause of onset of these urinary crises when both kidneys and skin glands suddenly pour out the retained fluid, we are still in the dark. It is obviously of great importance that in such cases there should be records of the elimination of the nitrogen and salts both before and during the crisis.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

IODINE FOR STERILIZATION OF THE SKIN OF OPERATION AREAS.

THAT the importance of this subject is fully recognized by most operating surgeons is well shown by the numerous methods which are practised, and which need not be enumerated.

They are based on the knowledge that germs of various kinds lurk in the depths of the true skin, as well as superficially, and that they have an unhappy tendency to sweat on to the surface during the operation, and to infect the wound. The amount of labour expended on attempts to sterilize the operation area is very great, and the consumption of material correspondingly large. Occasionally, owing to "over-preparation," eczema results. For military or naval surgeons it is important to secure some method which is certain, rapid, and capable of being effected with a minimum of assistance and materials. For emergency work in private practice the method which I am about to advocate would be very useful. It consists in the use of a 10 per cent. spirituous solution of iodine. The idea is not in any way original, for I first learnt of it from a note of a paper by Dr. A. Grossich, of Fiume, in the EPITOME of the BRITISH MEDICAL JOURNAL, of November 21st, 1908. Since that date the whole of my operation cases have been prepared as follows:

The evening previous to operation the patient has a hot bath, using plenty of soap, but excessive scrubbing of the operation area is not permitted. It is then shaved, washed, and a piece of dry lint bandaged on. Nothing more is done until the patient is on the table. If eucaine is being used the area is *freely* painted with 10 per cent. spirituous solution of iodine (practically the liniment) and the eucaine injected. Before making the skin incision the area is painted once more. In the case of a general anaesthetic the iodine is painted before the administration is begun, and again when the patient is ready.

Preliminary scrubbing and wetting is not desirable, for Grossich points out that the superficial layer of the epidermis is not an absolutely compact tissue. The cells are loosely packed, and intercellular spaces exist which communicate with the external air by microscopic clefts. These clefts, which contain fat, sweat, and bacteria, are readily penetrated by an alcoholic solution of iodine, which dissolves their contents. On the other hand, in the method of cleansing commonly practised these clefts are likely to be closed by the swelling of the cells which is caused by hot water; or their contents may be retained by water and microscopic fragments of soap. For these reasons it is much more difficult to disinfect the skin by liniment of iodine after it has been cleansed by soap and water than if it had not been so cleansed and is quite dry. At the end of the operation the sutures are painted.

The following operations have been performed under this method: Appendectomy, radical cures of hernia and varicocele, hammer-toe. In every case healing by first intention has resulted. The number of operations—30 in all—is not great, but it enables me to state that I have obtained just as good results from using this very simple method as when I had the skin prepared the day before and again on the table, using turpentine, ether, soap, and mercury biniodide. The labour involved is enormously diminished, and a great saving of material is effected.

The potency of iodine as a sterilizer of such septic material as catgut is now well known, and it is only reasonable to expect just as good results in the sterilization of the skin.

F. J. W. PORTER,
Major, R.A.M.C.
Colchester.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

WESTERN INFIRMARY, GLASGOW.

(Notes of cases under the care of Dr. J. CRAWFORD RENTON.)

1. *Gastro-enterostomy and Pylorectomy.*

J. M., sailor, aged 62, was sent to me by Dr. Whitehouse, suffering from dilatation of the stomach and an indefinite pyloric tumour. On opening the abdomen the tumour was found to be movable, with no evidence of disease of the liver. A small section of the tumour was cut out for examination. Gastro-enterostomy was performed. Professor Muir's report on the section was adeno-carcinoma. The patient recovered well from the first operation, and in three weeks pylorectomy was performed in the usual way. One or two glands were enlarged and were removed along with the others. The patient progressed favourably, and has gained 8 lb. since the operation two months ago.

2. *Gastro-enterostomy for Duodenal Ulcer.*

A. D., aged 35, was placed under my care by Professor Stockman. There had been severe haemorrhage in June when I first saw him with Professor Stockman, but his condition then was too serious to advise operation. The haemorrhage recurred in October, and he returned. Posterior gastro-enterostomy was performed (Mayo's method) and the duodenal ulcer blanket-stitched. He did well and has gone home.

3. *Gastro-enterostomy for Ulcer of the Stomach.*

M. A., female, aged 37, was sent to me by Dr. Monie of Airdrie, with symptoms of ulcer and pyloric contraction. On opening the abdomen a large ulcer was seen to occupy the lesser curvature of the stomach, with so much induration around it that a pseudo-hourglass contraction existed. Gastro-enterostomy was performed posteriorly. The patient made a good recovery and has gone to the country.

4. *Cholecystotomy for Gall Stones and Suppuration.*

B. R., male, aged 19, was sent to me on account of intense pain over the gall-bladder region. On opening the abdomen the gall bladder was found full of pus. A stone the size of a hazel nut occupied the cystic duct, and, along with several others, was removed. The patient recovered.

It is so unusual to have gall stones in one so young that I think it right to record the case.

5. *Cholecystotomy for Gall Stones and Suppuration.*

Dr. William MacLennan asked me to see L. C., aged 28, complaining of intense pain in the gall-bladder region, with high temperature, and, in addition, severe pain in the right thigh. There was no evidence of any swelling in the thigh, and the pain appeared to be one of those reflected pains concerning which Dr. MacKenzie of London has written so ably. The abdomen was opened, and the gall bladder was found full of pus; seven stones were removed. On recovering from the anaesthetic the first remark the patient made was, "The pain in my leg is quite away." The gall bladder was drained in the usual way, and she is now quite well.

6. *Kraske's Operation for Epithelioma of the Rectum.*

P. D., aged 21, came under my care for epithelioma affecting the middle part of the rectum. Kraske's operation was performed, the sphincter being retained. The patient recovered without any fistula.

Two cases operated on three years ago remain quite well. I still think favourably of this operation in suitable cases. Unfortunately patients do not come early enough.

7. *Excision of the Knee-joint for Rheumatoid Arthritis.*

M. P., female, aged 34, the subject of general rheumatoid arthritis, was placed under my care by Professor Stockman, as the knee-joint had become fixed at a right angle. An *x*-ray examination showed spikes on the femur and tibia in various directions. Excision of the knee-joint was performed, and the patient is now walking about free from pain.

8. *Appendix Cases.*

While continuing to be satisfied with the Fowler position, along with saline infusion into the bowel in cases of gangrenous appendix with abscess, as also in general peritonitis, I think we have helped eight bad cases recently by using a double dose of antistreptococcic serum into the rectum, which is repeated if necessary.

9. *Laminectomy for Pott's Disease.*

Two cases were noted in the BRITISH MEDICAL JOURNAL, one three and a half years ago, the other eighteen months ago. An opportunity was afforded recently of hearing of them, and it is satisfactory to record that they are both quite well. The laminectomy was only performed after all other means had been used.

10. *Hysterectomy for Fibroid (Chorion-Epithelioma ?).*

A. F., aged 44, was sent to my care by Dr. Haldane, of Bridge of Allan. She gave a history of considerable haemorrhage. I advised operation, and hysterectomy was performed in the usual way. The appearance of the tumour led me to request an examination by Professor Muir and Dr. Teacher. Their report is as follows:

The uterus proves to contain the remains of a hydatidiform mole. There is the usual large amount of infiltration by trophoblastic elements, and there are large masses of trophoblastic cells (chorion-epithelial). While this is not absolutely diagnostic of chorion-epithelioma, it suggests very strongly that danger of development into this tumour was present.

THE General Association of French Medical Practitioners, which was founded on August 31st, 1858, will celebrate its jubilee in April, 1909.

AN international congress for the amelioration of the condition of the blind will take place at Naples this spring. Questions relating to the training, education, work and rights of the blind will be discussed. Arrangements have been made for a joint meeting with the Congress of Ophthalmology, which is to be held at Naples at the same time.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, January 22nd, 1909.

J. PORTER PARKINSON, M.D., in the Chair.

Rheumatoid Arthritis.

THE CHAIRMAN showed a case of rheumatoid arthritis in a young child.

Dorothy G., aged 2½ years, began to suffer from swollen and painful joints in June 1908; the ankles and wrists were first affected, then the knees, elbows, and other joints. There was much pararticular swelling, with excess of fluid in the joints. The joints were at times acutely painful, and the temperature rose occasionally to 103° or 104°. There was much wasting, and the child had a pallid earthy tint of skin, and appeared to be suffering from a slow toxaemia. There was general enlargement of the lymphatic glands, especially in the axillae and groins. The spleen was much enlarged, extending four finger-breadths below the costal margin. Over parts of the trunk and legs was a diffuse brown pigmentation resembling that seen in adults suffering from the same disease. The lungs and heart were normal. There was extreme wasting of the muscles of the legs and forearms. Intervals of pyrexia alternated with fever, often up to 103° F. or higher, lasting for a week or so, during which the joint pains and swelling, the lymphatic and splenic enlargements, and the cachexia were all much increased.

There had been great improvement during the last six weeks both in the general and local symptoms.

Dr. MILNER BURGESS said he thought the name "rheumatic" should be dropped in connexion with such cases, as it seemed to be the general opinion that there was no relation to rheumatism.

Dr. E. I. SPRIGGS said that occasionally, on seeing a case for the first time, there seemed to be some difficulty in diagnosis between subacute or chronic rheumatism and rheumatoid arthritis, though that difficulty generally vanished when the case was carefully gone into. Recently he showed before the Clinical Section an adult male with true rheumatoid arthritis who had enlarged glands in the groin, axilla, and above the elbow; he also had exophthalmic goitre. In the latter disease there was frequently pigmentation, and in chronic infective arthritis in adults. Exophthalmos had also been described in connexion with Still's disease, though he had never seen it. The spleen was probably enlarged in children because that organ responded more easily to infective conditions in them than in adults. He mentioned a case like that of Dr. Parkinson's in which material had been obtained from the joint, but efforts to cultivate a micro-organism were fruitless.

Dr. PARKES WEBER asked whether von Pirquet's reaction for tubercle had been tried.

Dr. PARKINSON replied that he used the term "rheumatoid," and agreed that such cases should not be called "rheumatic." Dr. Spriggs's case of rheumatoid arthritis in which glands were enlarged was interesting in showing the link between the cases in children and in adults. He did not think the case was tuberculous, but would try the reaction.

Congenital Cystic Disease of Kidneys.

Dr. T. R. WHIPHAM showed a specimen from a case of congenital cystic disease of the kidneys, and a skiagram taken during life. Both kidneys were from a male infant, aged 11 months, who was brought up for whooping-cough and found to have an enlarged abdomen with bulging in both flanks and some dilated superficial veins. Two masses could be felt symmetrically situated, and the anterior edges extended from the costal margin to the middle of Poupart's ligament. The tumours were slightly movable, and the percussion note over them was dull. The liver could be felt 1¼ in. below the costal margin. The abdomen had been noticed to be large since birth. The specific gravity of the urine varied from 1005 to 1010. The urine contained a varying amount of albumen, from 0.1 to 0.8 per cent. The quantity of urea was from 0.4 to 1.8 per cent., the total being from 1.05 to 3.12 grams per diem. The child, who was not greatly troubled by the cough, became rapidly worse. A transient oedema of the hands

and feet occurred for a few days, and towards the end the liver became enlarged and some purpuric spots appeared on the trunk. Death was ushered in by convulsions. The kidneys weighed 7½ oz. each. They were uniformly pale and tough, and showed little difference between the cortex and medulla. They were crowded with innumerable cysts, the largest being the size of a very small pea. The capsules were somewhat adherent. The pelves were dilated and contained a deposit of uric acid sand, but the ureters were normal and there was no obstruction to the flow of urine.

Dr. PARKES WEBER congratulated Dr. Whipham on having diagnosed the condition during life. In his opinion, however, congenital cystic disease was not the only disease which might give rise to enlargement of both kidneys and albuminous urine in a child. He had published a case which showed diffuse lymphocytic growth of both kidneys.

Dr. ROBERT HUTCHISON asked whether congenital cystic kidneys were ever unilateral, as he had made such a diagnosis in an adult case. He could recall two other cases in which the diagnosis was made during life. If a nodulated tumour could be felt in both loins and there was suspicious urine he thought the diagnosis was justified.

Dr. CAUTLEY said he thought the diagnosis could be justified if only one kidney was felt, as there were several cases on record in which one kidney showed signs and the other was found *post mortem* to be also cystic.

Dr. FORSYTH quoted a case in which two enormous cystic kidneys were found *post mortem*, but only one had been felt.

Fibrosis of Lung.

Dr. JEX-BLAKE showed a case of fibrosis of the left lung of considerable standing in a child aged 8 years.

There was a history of phthisis on both sides of the family. The patient had whooping-cough at 12 months, and "pneumonia" at 4; no other illnesses. At 5 he was admitted in April, 1906, to St. George's Hospital with fibrosis of the left upper lobe and bronchitis; while in hospital he showed irregular fever, 99° to 101° every evening. In January, 1908, he was admitted to the Victoria Hospital with the complaint of cough and wasting; the signs of fibrosis at the left apex were more marked, and there was slight clubbing of the finger tips. While in hospital he coughed little, and no sputum could be collected; the temperature was irregular, rising occasionally to 99° to 100°.

On January 12th, 1909, he was brought to the hospital again, with a history of cough and general illness for one week.

No sputum had been obtained since he had been in hospital.

The *x*-ray examination showed general opacity of the upper part of the left lung; the heart was drawn over to the left; the diaphragm was low, and moved poorly on both sides.

The chief point of interest about the case was that on admission it showed Grocco's paravertebral triangle of dullness on the right side behind.

The CHAIRMAN asked the opinion of members on the value of Grocco's triangular dullness. He believed the sign to be present in this case, but some had said that it was present in every child whether healthy or diseased.

Dr. EWART said that in his hands the Grocco sign had been valuable as a sign of fluid, but it was, of course, necessary to exclude the presence of dullness from consolidation. The crucial test was to change the position of the patient, and if the fluid was free the triangular dullness should disappear, and should return on restoring the body to the former position. Empyemata, not being commonly free, did not answer to this test. When fluid filled the peritoneal cavity and raised the diaphragm, Grocco's sign could be found as a big equilateral triangle bisected by the spine.

Infant Mortality as Seen in a Children's Hospital.

Dr. DAVID FORSYTH read a paper on Infant Mortality as seen in a Children's Hospital. An exact pathological knowledge of the causes of infants' deaths was of the greatest practical importance from the point of view of prevention. Hitherto our principal guide in this matter had been the official returns of the Registrar-General, which showed the relative importance of various diseases in this connexion. These returns, however, were in some cases difficult to harmonize with the experience in the wards and *post-mortem* room of a children's hospital. Conditions known to be frequent causes of death in hospital practice occupied a relatively insignificant place in the official returns, whilst others which were officially important were in practice unimportant. With the object of obtaining statistics based on accurate death certification, Dr. Forsyth had examined the death records of the Evelina Hospital for Sick Children from January 1st, 1885, to December 31st, 1906, and had analysed the causes of 1,202 consecutive infant deaths under one year. The numbers in this series were as follows:

Acute lung diseases, 254; diarrhoea, 188; whooping-cough, 135; tubercle, 128; marasmus, 78; congenital defects, 75; syphilis, 55; septic conditions, 44; intussusception, 34; mastoid disease, 32; meningitis (non-tuberculous), 26; rickets, 13; convulsions, 13; all other diseases, 127. Total, 1,202.

The method adopted in tabulating these cases was explained, and reasons were given to show that a comparison with the returns for England and Wales was permissible. For reasons specified, the three items—prematurity, measles, and whooping-cough—were excluded from the comparison. Under the remaining headings, the mortality in the official and in the Evelina Hospital returns stood thus in percentages:

	Evelina Hospital.	England and Wales.
Acute lung diseases	23.8	21.40
Diarrhoea	17.6	23.20
Tubercle	12.0	5 10
Marasmus	7.3	16.30
Congenital defects	7.0	6.30
Syphilis	5 2	1.30
Septic conditions	4.1	—
Intussusception	3.2	—
Mastoid disease	3 0	—
Meningitis (non-tuberculous) ...	2.4	2.00
Rickets	1 2	0.58
Convulsions	1 2	12 20
Injury at birth	—	0.76
Starvation	—	0.70
Other causes	12 0	10.16
	100.0	100.00

Whilst a fairly close correspondence existed between the two series, many striking differences must be noticed. Acute lung trouble and congenital defects showed no great divergences. With diarrhoea, the somewhat smaller figure that represented the Evelina Hospital mortality was accounted for by two facts. In the summer, when diarrhoea was rampant, the accommodation in children's hospitals was overtaxed, and even moribund cases might be sent away. Secondly, it was probable that some of the deaths in the official returns which had been ascribed to diarrhoea would have been registered under other headings if facilities for *post-mortem* examinations were as great in general practice as in hospitals. With regard to marasmus, a difference of more than 100 per cent. existed between the two series of figures. Since the official returns represented over 15,000 dead infants, its interpretation possessed wide practical importance. Marasmus was a term of vague significance, and was often employed in connexion with diseases of which it was merely a symptom, especially with syphilis, improper feeding, and tubercle. It could not be doubted that deaths from these causes were sometimes registered as due to marasmus, and that a proportion of them should be distributed under other headings. These criticisms applied even more forcibly to deaths from "convulsions," the official returns for which were no less than 1,000 per cent. of the Evelina figures, and represented 11,000 deaths. The term "convulsions" under no circumstances represented more than a symptom, and when employed as a cause of death merely hid under a meaningless designation important fatal conditions, the returns for which were unduly minimized. With regard to syphilis, this disease was held responsible in 1905 for only 1,200 infant deaths in the whole of England and Wales—little more than 3 a day. In the same year, however, 19,000 infants under 2 months were

stated to have died from prematurity. Probably this large figure included the deaths of numbers of syphilitic infants. As a matter of fact, the deaths in 1905 from syphilis of infants under 3 months amounted only to 300 according to the official returns. Other deaths from this cause must be looked for under the heading "marasmus." With regard to rickets, the hospital figures were twice those for England and Wales. Here it must be remembered that cases of rickets were often fatal from bronchopneumonia or diarrhoea, and the primary condition was likely to be overlooked. After referring to acute mastoid disease as a cause of infant mortalily, Dr. Forsyth passed to the question of tubercle. The Evelina Hospital figures included only those cases in which tubercle was the actual cause of death, and excluded all in which, though a tuberculous lesion was found *post mortem*, death resulted from some other cause. The difference in the two series was probably to be explained by the tendency of tuberculous disease in infants to simulate other non-tuberculous affections. Probably the hospital figure, 12 per cent., more nearly represented the real mortality than the official figure, 5 per cent. The frequency, however, with which life was destroyed by tuberculous infections incurred during infancy was underestimated even by this larger number, because many such cases did not die until their second year, and their deaths did not come into the infant mortality returns. The full importance of tubercle as a factor in infant life would be better revealed by statistics dealing with deaths up to 15 or even 18 months. At the Evelina Hospital 50 children died of tubercle between these ages. Many, if not most of them, must have been infected during their first year. In conclusion, Dr. Forsyth expressed the hope that these Evelina Hospital statistics would lead to the preparation of corresponding figures from the records of other children's hospitals. An accurate knowledge of the causes of infant mortality could be best obtained from those institutions in which special opportunities existed for ascertaining the exact causes of infant deaths. If, further, the absolute numbers in each series were published, they would be in a position to draw valuable conclusions based on many thousands of cases. At present 20 per cent. of the mortality, representing 25,000 deaths, was attributed to vague symptoms. When the community had set a proper value on infant life, such terms as "convulsions" and "wasting" would no longer be accepted for death registration. If no more satisfactory explanation of the cause of death were forthcoming further steps would be insisted on, as was done to-day with adult deaths. By this means a far-reaching and practical measure would be taken to diminish the present excessive waste of infant life.

The CHAIRMAN said the Section was much indebted to Dr. Forsyth. He commented on the few deaths attributed to rickets being put under the heading of the terminal trouble, whatever it might be.

Dr. DUDFIELD said that Dr. Forsyth had shown a classification of deaths on a strictly scientific principle, which could not be said for the Registrar-General's classification. The Registrar-General's rule that if the duration of the disease was not mentioned on the death certificate the first disease on the list should be taken as the cause of death led to some curious results. For instance, syncope would be mentioned first and diabetes second. In a case of bronchopneumonia or tubercle and whooping-cough, whooping-cough was usually selected for the cause of death. "Marasmus" was a very favourite term with the profession.

Dr. HUTCHISON expressed surprise that mastoid disease was responsible for 3 per cent. of the deaths. He did not think that this would be found to be the case at the Great Ormond Street Hospital. Might it be due to the large amount of whooping-cough treated at the Evelina?

Dr. MEREDITH RICHARDS said that marasmic children admitted to hospital would have proper treatment and many of them would recover; whereas, if they were not admitted to hospital, death was more likely to occur. In tubercle also there was a large amount of selection. Therefore, it was necessary to take precautions when comparing hospital figures with those gleaned from the community in general.

Dr. W. EWART said that a *post-mortem* basis seemed to be the only reliable scientific one. The difference in statistics from a hospital and those from sources remote from hospitals was an index of the progress of medical science.

Dr. CAUTLEY, after congratulating Dr. Forsyth on his energy in regard to the paper, went on to say that the conditions of hospital practice were so different from those in everyday life that he doubted the applicability of the results. He would have liked to have known the ages or the mean age of the cases.

Dr. FORSYTH, in reply, said that it was from the scientific aspect that he regarded the figures. The methods adopted in tabulating death registration were different from those in a hospital. He understood from Dr. Dudfield that if a child died from septic meningitis or mastoid disease twelve months after having suffered from scarlet fever, the death was attributed to scarlet fever. That was misleading. Another point was that his statistics were taken over a period of twenty-three years. Twenty-three years ago the death-rate from mastoid disease was probably much higher than now, and no doubt now it was less than 3 per cent. He had tried to show that a diagnosis on clinical data was not always a true one, *post-mortem* examination giving the most accurate figures.

OBSTETRICAL AND GYNAECOLOGICAL SECTION.

Thursday, January 14th, 1909.

HERBERT SPENCER, M.D., President, in the Chair.

Histology of the Smaller Myomata.

DR. FLORENCE E. WILLEY read a paper on this subject. She said sections of young myomata, from 5 mm. diameter upwards, illustrated the following points:

1. That the proliferating cells in growing tumours were muscle cells.

In sections from patients, aged 30 to 40, with enlarging uteri, the areas of proliferation showed less connective tissue in proportion to the muscle than was found in non-proliferating muscle bundles of the same uterine wall, and the muscle nuclei were oval to rod-shaped; whereas seedling tumours past the menopause consisted largely of fibrous tissue, and the muscle cells had narrow rod-shaped nuclei.

2. The cells which proliferate were not those of the vascular system, but cells common to the whole uterine parenchyma.

3. The shape of early growths was most various, depending on the direction of the muscle bundles concerned rather than on any relation to vessels, large or small. Capsule formation began later, when the growing tumour assumed an oval or spherical shape.

4. Subperitoneal fibromyomata often began by proliferation of the muscle bundles immediately beneath the peritoneum, and capsule formation in these was first seen on the site adjoining the uterine wall.

5. In sections of sixty to seventy uteri of all ages no fibromyomatous seedling had been found before puberty, and those in women past the menopause consisted largely of fibrous tissue.

The author concluded that fibromyomata arose as irregular patches of proliferation of muscle cells of the uterine parenchyma, which had no special relation to the vascular system. The cause of this proliferation was unknown, but the absence of growing tumours before puberty and after the menopause suggested some relation to the activity of the sexual organs.

The PRESIDENT corroborated Mrs. Willey's statements as to the absence of capsules in many small fibroids, and had been surprised to hear it asserted that they always had capsules.

After remarks by Dr. HEYWOOD SMITH and Dr. MACNAUGHTON-JONES, Mrs. WILLEY replied.

Remote Results of Abdominal Hysterectomy.

MRS. STANLEY BOYD gave the remote results and *post-mortem* findings four and a half years after operation in a case of abdominal hysterectomy for cancer of the cervix, followed by vesico-vaginal fistula. Vesico-vaginal fistula developed six days after the operation, but was small, and gave the patient comparatively slight inconvenience, so that she persistently declined operation for its closure. The case was watched for four and a half years, during which time there were intermittent attacks of pyuria, which were attributed to suppuration in the neighbourhood of the bladder bursting into it. In August, 1908, the patient was admitted into the Great Northern

Hospital with suppuration about the right kidney, under Mr. Peyton Beale, too ill for anything but incision of abscesses and palliative treatment. She died September 12th, 1908. The *post-mortem* examination showed no recurrence of growth, but complete occlusion of the right ureter at its vesical end, where it was embedded in a mass of cicatricial tissue, right pyonephrosis, perinephric suppuration, subdiaphragmatic abscess, and right empyema.

The President said he had often wondered what happened to patients with ureteral fistulae when the fistulae closed, as Wertheim had shown that they frequently did, and whether the extensive removal of the tissues around the ureters might not lead to cicatricial obstruction of these tubes.

Dr. A. H. Lewers said that he had had a case of vaginal hysterectomy for carcinoma of the body of the uterus many years ago, in which a ureteral fistula had developed. Nothing of an active kind was done for it, and some months later the fistula healed. The patient was seen several times subsequently, and there was no evidence of anything wrong with the kidney.

Dr. G. F. Blacker had had three cases of ureteral fistula occurring after total abdominal hysterectomy. In the first case, owing to septic changes, the corresponding kidney had to be removed, and this was followed by complete recovery. The second case developed an attack of acute suppression of urine, lasting twenty-four hours, about five weeks after the operation. The patient recovered and the fistula healed. In the third case the patient developed a high temperature a month after the operation, and the *Bacillus coli* was found in the urine. Eight weeks after the original operation the patient died with symptoms of pyaemia, and at the *post-mortem* examination a small abscess was found at the site of the fistula.

Mrs. Stanley Boyd replied.

The Rôle of the Perineal Body in Labour.

Dr. R. H. Paramore read a paper on the rôle of the perineal body in labour. He stated that the perineal body played no part in the support of the viscera, nor did its rupture facilitate prolapse. Yet the perineal body exercised a far-reaching influence during childbirth which was neither necessary nor good. In the descent of the fetal head through the outlet of the pelvis, the pelvic floor became transformed into a broad, gutter-like declivity, at the lower end of which the posterior commissure of the pubo-rectalis muscle is found. The dilatation of the anus and the increase in length of the base of the perineal body showed how much the tissues below the pelvic floor stretched. The tension of these thinned-out peritoneal tissues determined the more forward projection of the anterior segment of the head, the head being ovoid in shape. If the vulvar aperture was destroyed by a laceration, the movement forward of the anterior segment of the head did not occur. It was evident that a perineal tear, by allowing birth with the least possible distension of the muscle, might undoubtedly in many cases prevent an injury which predisposed to prolapse. An early peritoneal tear might be a blessing in disguise. Perineal tears, when they did not involve the sphincter, were trifling injuries, and the only reasons for suturing them were to check haemorrhage and prevent infection. The main mass of the pelvic floor musculature passed behind the anal canal and remained intact, in spite of such a tear. The continued extension of the head could be prevented by adopting the method of Toff. When the head appeared at the vulva, two fingers were placed between it and the pubes, and traction exerted backwards. Simultaneously the head might be pressed downwards and forwards from above the anus.

Dr. Macnaughton-Jones said he would be sorry to think that it should go out from this Section that there should be any divergence from the obstetrical rule of at once closing a perineal tear. Rectocele and vesicocele constantly occurred with what Howard Kelly called "relaxed vaginal outlet," where there was no apparent laceration, but in which the perineum was weakened.

Dr. Amand Routh thought that there could be no possibility of doubt that the perineal body serves many useful purposes, and that its integrity was essential to the preservation of the tone of the vaginal and vulvar outlet.

Laryngological Section.

At a meeting held on January 8th, Dr. Dundas Grant, President, in the chair, a discussion took place on the *Modern treatment of syphilis*, especially with regard to the upper respiratory tract. Dr. Lieven (Aix-la-Chapelle), who opened the discussion, referred to the recent advances in syphilology, including the identification of the *Spirochaeta pallida* and the detection of specific antibodies in the serum of people infected with syphilis. No serum-therapeutic treatment had, however, been found effective. The chief remedies were still mercury and iodides. Mercury had been proved by Neisser, by experiments on anthropoid apes, to assist the organism to defend itself against the spirochaete, and also to kill the microbe. Atoxyl was found experimentally to produce the same results, but if given in sufficiently large doses to be effective it was dangerous to the optic nerve. In the administration of mercury Dr. Lieven advocated inunction and subcutaneous or intramuscular injection, and compared the advantages of soluble and insoluble salts for injection. His preference was for calomel as far as effectiveness was concerned, but he reserved it for the malignant forms, the salicylate being more suitable for routine treatment. These salts should be avoided in cases of Bright's disease or diabetes. Inunction was better tolerated if combined with baths of soap and sulphur. The secretions of the sebaceous and sweat glands rendered it capable of being absorbed and of circulating in the body as an albuminate. Stomatitis was best combated by brushing the teeth after each meal with a paste of salol and chlorate of potash, and by rinsing the mouth every hour with a solution of aceto-tartrate of aluminium. Iodides were most useful in tertiary manifestations, but were also effective against secondary vegetating patches at the entrance of the nasal passages and on the floor of the nose. Iodism was often removed by the daily administration of 15 grains of sulphanilic acid in 7 oz. of water. Iodipin might be substituted for those who were very sensitive to iodides. Dr. Lieven thought that there was not yet sufficient evidence in favour of treatment by means of the various arsenic preparations. Before treatment was commenced the diagnosis should be certain, and in doubtful cases the spirochaetes should be found, or time should be given for the serum test or the appearance of a roseola. Inunctions or injections should then be given, in most cases no local treatment being necessary. Chancres on the lips or face might be covered with mercurial plaster; those inside the nose or mouth should not be cauterized, simply dusted with nasophen, or, for pain, orthoform. Secondary ulcerative patches might be painted with a concentrated solution of chromic acid, and over this a 10 per cent. solution of silver nitrate to form an adhesive scab. At the end of the first year iodides were given. After the healing of tertiary lesions under the iodide of potassium (the most rapid remedy) iodipin injections together with mercurial inunctions were useful. Colonel Lambkin, R.A.M.C., considered inunction to be the ideal remedy, but difficult to carry out in practice. He therefore made use of injections, and he started usually with ¼ grain of calomel once a week for four weeks, and then continued with metallic mercury. He favoured local treatment in the upper respiratory passages by means of chromic acid and even curetting. He had treated about 120 cases with arsenic, and had found less soreness of the throat, but since his observations in Uganda he had given up atoxyl. Sir Felix Semon considered the oral administration of mercury no preventive of severe tertiary manifestations. Local applications were needless, and malignant cases should be treated with calomel injections and with sarsaparilla rather than with iodides. Major French, R.A.M.C., commenced treatment with inunctions, and afterwards injected grey oil. He always stopped smoking during treatment. Dr. Beddoes favoured administration by the mouth. He spoke well of injections and of Zittmann's decoction, in which the mercury was in the form of an albuminate. Mr. Barwell used injections of mercuric benzoate and inunctions. Dr. Donelan advocated inunctions, then mercury and iodides, and then inunctions again. The discussion was continued by Mr. Stuart Low, Dr. StClair Thomson, Dr. Scanes Spicer, and the President; and Dr. Lieven replied.

MEDICAL SOCIETY OF LONDON.

Monday, February 1st, 1909.

CHARLES BARRETT LOCKWOOD, F.R.C.S., President, in the Chair.

Functional Disorders of the Stomach.

DR. SIDNEY MARTIN delivered the first of the Lettsomian Lectures for 1909. He divided functional disease of the stomach into three groups: (*a*) Gastric irritation, in which the symptoms were induced mainly through irritation of the organ from various causes; (*b*) gastric deficiency, which might result from irritation of the organ, and in which the main condition was that of deficiency of the function of the stomach; (*c*) indigestion of nervous origin in which symptoms referable to the stomach were associated with a large number of symptoms referable to the nervous system. The term "gastritis" ought to be reserved for inflammation of the stomach, which might occur in various diseases or as a result of an irritant poisoning, and such cases he did not propose to consider. Reference would be made to organic disease—ulcer and carcinoma—of the stomach. The digestive activity of the stomach contents (that was the amount of pepsin secreted) increased or diminished with the amount of hydrochloric acid secreted by the mucous membrane. In the ordinary forms of gastric irritation which were commonly described as acid dyspepsia there was hyperchlorhydria. The percentage of hydrochloric acid secreted two hours after a meal was between 0.25 and 0.4 grams. That was an undoubted fact, which he could verify not only from his own observations but from those which had been made on a large scale in other countries. In functional cases, such as were admitted into the wards of a hospital, in which there were severe symptoms and usually grave defects of nutrition, it was found that the condition was more frequently one of hypochlorhydria than of increased secretion of acid. All the cases recorded were diagnosed as functional, partly from the duration of the illness, partly from the symptoms, but mainly from the fact that recovery occurred more or less completely as a result of treatment. He had records of 25 cases; in one case there was no secretion of acid in two hours' digestion; in 4 cases the total acid secreted was under 0.1 per cent.; in 7 cases the secresion was from 0.11 to 0.14, and in the remaining 14 cases the secretion was either normal or (in 4) was increased. A large proportion of the cases showed a great deficiency of gastric secretory activity. Of the 7 cases of neurosis, 1 showed achlorhydria, 2 a percentage of 0.12, 1 of 0.2, 1 of 0.24, and 2 of 0.29 hydrochloric acid. All those were cases of indigestion of food, with great predominance of nervous symptoms, and the gastric analyses showed the great variations which occurred in the secretion of acid in such cases; 16 of the other cases were definite instances of damage to the stomach by irritation of various kinds. In 2 cases there was marked increase in the amount of acid secreted. In 7 the percentage of acid was between 0.18 and 0.23. In 3 the percentage was about 0.12, and in 4 the percentage varied between 0.02 and 0.08. These cases might, therefore, be divided as regards the secretion into 7 of hypochlorhydria, 7 of normal secretion, and 2 of hyperchlorhydria. In the case of achlorhydria, after three weeks' treatment a fair percentage of acid was found in the stomach contents, and in 2 other cases a similar result was obtained. In another case, however, the percentage of acid was actually less after a month's treatment, although that patient eventually was to all intents and purposes restored to health. The 2 cases remaining were those of gastroptosis, both occurring in women. One showed a diminished percentage of acid, 0.12; the other showed a slight increase (0.23). At the time cases came under treatment there was great variability in the secretion of acid in the stomach, so that it was impossible solely from the symptoms to determine whether the case was one of increased acid secretion, diminished acid secretion or absence of acid secretion. The digestive power was fairly proportional to the amount of acid secreted, but even when some acid was secreted no pepsin might be present in the stomach contents. Organic acid was absent in nearly all those cases that showed an acidity of over 0.2 per cent., below that percentage of acid organic acids were found, chiefly lactic acid, in small quantities, although in one case it was 0.14 per cent. Two of those cases were of the nervous type, in one the secretion of acid was 0.21 per cent., and in the other, a case of neurotic vomiting in a young girl, it was 0.29 per cent. Dr. Martin then gave details of 18 cases of ulcer of the stomach. Of these 5 showed a deficiency of 0.1 per cent. and under; the remaining 13 cases were either slightly below normal or more than the normal, that was, they showed hyperchlorhydria. He drew attention to one case in which three years after gastro-enterostomy the secretion of acid was 0.14 per cent., and the digestive power was 54 per cent., both below the normal. He would speak later of the condition of the stomach after gastro-enterostomy and ulcer, and draw attention to the fact that not only might there be deficiency in secretion, but also from time to time an increase of secretion. Dealing with a series of 18 cases of carcinoma, he considered that they contrasted strongly with cases of ulcer and cases of functional disease, inasmuch as the greater proportion showed a great diminution of acid secreted as well as a great diminution of digestive power. In conclusion, Dr. Martin said his review of secretory activity in disease showed that the result of analysis of the stomach contents could not be relied upon as absolutely diagnostic.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, January 28th, 1909.

R. MARCUS GUNN, F.R.C.S., President, in the Chair.

Hereditary Lamellar Cataract.

MR. BISHOP HARMAN read a paper on four generations of lamellar cataracts. He showed the pedigree of a family for five generations, four of which presented a marked inheritance of congenital cataract. Seventeen childships were traced, comprising 63 persons; 8 died in infancy; of the remaining 55 it was known that 19 had congenital cataract. In no case had there been any in-breeding, or marriage with a person similarly affected. The type of cataract was, for the most part, central opacities of varying size; some were minute, Y or X or star-shaped, others showed definite lamellar formation. In some cases the cataracts were of long standing, and no evidence could be found that they had progressed beyond the stage at which they were earliest seen. Probably the number of cases of cataract found did not represent the true total, for in one childship of seven members amongst whom only one case of cataract was admitted, examination of the seven showed that four had lenticular opacities. The inheritance was strictly from those who had cataract. In no case was cataract found in a child where the parents were free from the defect. When a defect had disappeared from a branch of the family it did not tend to reappear. The teeth usually were good, and no other developmental errors were found.

Mr. HARMAN also read notes of a case of unusually rapid development of cataracts in a boy of 9 years. A year previously his vision had been recorded at school as $\frac{6}{12}$; an examination passed three months before showed that he could then write well. When seen he was quite blind; both lenses were completely cataractous; the lens matter was soft and opaque. The lenses were removed by curette evacuation at the Belgrave Hospital, and at the end of six weeks the boy left the hospital able to read $\frac{6}{12}$ with cataract glasses, and later on he saw $\frac{6}{6}$. He showed no trace of general disease, but there was some evidence of defect in his ciliary vessels.

Colours of Benham's Top.

Mr. A. S. PERCIVAL (Newcastle-on-Tyne) read a paper entitled "Note on the Colours of Benham's Top," and demonstrated the different colours shown when the top was rotated clockwise as compared with those when the rotation was in the opposite direction. The explanation, which was not yet certain, was highly technical, and he suggested several theories.

Rhythmic Oscillations of Pupil.

Mr. PERCIVAL also read a contribution entitled "Note on Some Rhythmic Oscillations of the Pupil." He said that all were familiar with the rhythmic contraction and

dilatation seen in certain diseases, and which were usually looked upon as of grave significance. He compared this with the oscillatory discharge from a Leyden jar which occurred under certain conditions. If it were discharged through a conductor of high resistance the charge simply died away. If it were discharged through a good conductor, such as a coil of wire, the discharge consisted of a number of excessively rapid oscillations or surgings. He then compared the nerve cell and axis cylinder with the Leyden jar and conducting wire, stating that owing to disease the discharge of nerve impulse was made in an irregular manner. He regarded the movement tremors of disseminated sclerosis as an almost exact parallel to the oscillatory discharge of a Leyden jar.

Retinal Exudation.

Mr. David J. Wood (Capetown) sent a communication on a case of retinal exudation with extreme distension of vessels and perhaps arterio-venous anastomosis. He had contributed a similar case to the twelfth and another to the twenty-fifth volume of the society's *Transactions*, and recently he had seen and examined a third instance of this rare condition. He saw the patient first in 1902, and ordered glasses for her; there was then no complaint of the sight being bad. Later, as she had an attack of dimness of vision, he examined her fundi, and found large blood vessels running up to a patch on the upper part of the fundus, which possibly might have resulted from a former haemorrhage. The patient, who was then 50 years of age, returned in 1907, reporting that a few days previously the right eye had suddenly failed. He found that to be due to a diffusive opacity in the vitreous; no fundus details could be made out. Then the vitreous began to clear, and the drawing he showed represented the appearance seen. There was a white area above, and enormously dilated blood vessels could be seen running up to it from the disc. The colour of the vessels, which were very tortuous, was intermediate between that of arteries and veins. From the left trunk a vessel sprang which was arterial in colour, while another vessel, obviously venous, sprang from the opposite main trunk. There were fine choroido-retinal changes, which covered the inner part of the fundus. He thought the growth was probably sarcomatous, and his colleague advised excision, but he was so impressed with its likeness to his other cases that he held his hand. He hoped to report further on the case. He had not been able to hear more of his second case, already mentioned.

Mr. Treacher Collins described a similar case, and remarked on the rarity of the condition; and Mr. G. Coates described the pathological findings in a case he had thoroughly examined.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

Section of Medicine.

Friday, January 15th, 1909.

W. G. Smith, M.D., President, in the Chair.

A Year of Mental Hospital Work.

Dr. Dawson read a short report of the more interesting points which had arisen in the practice of Farnham House Mental Hospital during the year ending March 31st, 1908. Of the admissions, the essential cause in 29.4 per cent. was diathesis, in 47 per cent. various forms of moral and physical wear and tear, and in 23.5 per cent. toxic influences; there was, however, a neuropathic heredity in 71.4 per cent. The forms of disease in the cases due chiefly to diathesis were mania, melancholia, and dementia, with two cases of alcoholism. In one of the cases belonging to the second class the cause appeared to have been relief of anxiety. Of the toxic cases, one of alcoholic paranoia was quoted as showing that some alcoholic cases exhibited no symptoms pathognomonic of their orgin. A case of true diabetic melancholia was also detailed, in which recovery occurred when the sugar disappeared. Amongst the admissions melancholia had been the prevailing form of disease. Albuminuria had been found in 12 cases, mostly of a depressed cast, glycosuria in 8. Arterial pressure was tested in 7 admissions, being found normal in 2, high in 5. A case was related which seemed to show that large doses of bromide may possibly lower resistance to micro-organisms. Thyroid treatment was tried in 7 cases, with good results in 3. Two, however, were not improved, and the state of the heart induced by the drug had given some anxiety for a time. Atropin treatment had been used in 2 cases of alcoholism with some immediate success, unsuccessfully in a case of morphinism. Suprarenal had been found useful in keeping excitement in check. Some advantage had been found in the use of formates and lecithin.

The President said that the discussion in that section last year had shown that the influence of alcoholism *per se* in the production of insanity had been overrated. He was anxious to know if there were any definite mental variations correlated in any way with the forms of alcoholism. It was said that the police of France found absinthe drunkards to be homicidal, and had to separate them from the others, and it was possible that the essential oils in absinthe were important in producing pathological results. He would also like to know if there was any particular type of mind, or mental development, that was specially predisposed to alcoholic disturbance.

Dr. Kirkpatrick had some difficulty in understanding what Dr. Dawson meant by regarding diathesis apart from heredity in some of his figures. Did he recognize a type of individual who was likely to go mad apart from any hereditary taint? He thought there was a difficulty in accepting mental stress and strain as a general cause of insanity, although it might be a predisposing cause in conjunction with some weakness, hereditary or acquired.

Dr. Dawson, in reply, said the correlation of alcoholism and mental affection did not appear to have been studied. He was strongly of opinion that any one who had a neurotic heredity or who had acquired it should abstain absolutely from alcohol. Melancholic and demented patients were liable to suffer more from glycosuria than others. There were very few cases of insanity in which there were not contributory and exciting causes, and his classification was only intended to embrace what he considered the predominating cause of the particular attack. Diathesis was probably always hereditary, but it was not possible in all cases to trace the heredity. He held diathesis to be a different thing from heredity. He had not had experience of cases due to eye strain.

Intracranial Tumour.

Dr. Drury read the history of a case of intracranial tumour in a woman aged 30. Her symptoms had lasted for six months before she came under observation. When seen the cardinal symptoms of brain tumour were present, but there was nothing to indicate its position. As she was getting rapidly worse, unconsciousness impending and sight almost gone, an operation for relief of pressure was performed by Dr. Arthur Ball on July 13th, 1908. A large trephine opening was made in the temporal region on the right side under the muscle; the dura opened and a small quantity of fluid escaped; the wound then closed. Improvement followed rapidly; at intervals vomiting and headache returned, and the brain was tapped, fluid being drawn off on each occasion. These intervals became shorter, till eventually tapping had to be done daily. A tube was then inserted and kept in permanently for several weeks. During all that time very large quantities of fluid escaped. The patient improved so much that she could walk about, and could see and recognize people, and had neither headache nor vomiting. The wound was kept aseptic during the whole time. She suddenly became unconscious one morning, and died the next morning, November 8th, nearly five months after operation. The case was brought forward to illustrate the relief afforded by an operation of this kind, where there were no symptoms to indicate the position of the lesion, and, therefore, where no operation with any hope of cure could be attempted. It was found that the lesion was a large cyst in the cerebellar and pontine regions, which could not have been dealt with even had it been localized.

Poliomyelitis of the Conus Medullaris.

Dr. O'Carroll reported a case. A girl, aged 17, had been sent up from the country suffering from "tumour of the bowel." This turned out to be a very big prolapse of the rectum. Some months previously she had had a febrile attack, following which she had suffered from incontinence of urine and faeces. Later the bowel prolapsed. The sphincter ani was entirely relaxed, and the opening of the urethra rather wide. Sensation was perfect. The patient's general health was good. Under

treatment, principally by the faradic current, complete control was recovered in the rectum, but the patient was unable to retain urine for more than two hours when she left hospital.

Reviews.

RADIOGRAPHY AND DIAGNOSIS.

THE long-anticipated *Manual of Practical X-Ray Work*,[1] of which Drs. ARTHUR and MUIR, of the West London Hospital are the authors, is not only interesting in itself, but also important as marking a further stage in the co-ordination and systematization of radiology. Hitherto we have had descriptions of the methods employed by individual workers; now we have an effort to gather up certain accepted and reliable conclusions from the great mass of experience accumulated during the past few years. This is not to say that the book before us is a complete portrayal of present-day *x*-ray practice, for in a truly representative volume the therapeutical side would not be limited to one short last chapter out of ten, even though it may be true that in this branch of the subject uncertainty still prevails, and that the value of the treatment in many cases is still unconfirmed. It is inevitable that a large portion of the *Manual* should be devoted to the choice and working of apparatus, because it is here more than anywhere else that the inexperienced are perplexed by divided counsels. The book has been written—if for one class of workers more than another—for army and navy surgeons; and in dealing with apparatus, the convenience of those who require electrical equipment on the field or apart from the ordinary source of supply is consulted. The working of accumulators is treated most fully, and sometimes, as when dealing with the condenser and the phenomenon of self-induction, the authors take liberty with technical correctness in order to ensure ease of comprehension. With regard to the interpretation of radiograms, there will be general sympathy with Dr. Arthur and his colleague when they insist that only men of sound medical training and experience should be allowed to control the *x*-ray tube and interpret its results. For the non-professional operator to offer medical opinion upon a radiogram is sheer impertinence, and in dealing with radiographic appearances (of bones and joints, for example) the authors wisely make no attempt to indicate or correlate the pathology of many of the conditions considered. That can, of course, be done for himself by the medical man. They adopt a conservative attitude towards instantaneous radiography, and evidently care little for the somewhat sensational methods of making short exposures which are being advocated. Nor do they believe that orthodiagraphy will soon be superseded, judging by the exhaustive chapter on that subject, in connexion with which they describe a modified arrangement of their own for giving the orthodiascopic outline of the heart and the mediastinal contents—a method which appears to have the merit of simplicity if not of absolute accuracy. The excellent section on diagnosis is illustrated by a series of radiograms and, what are better still, by drawings made from radiograms. These sketches illustrating various conditions of the parts are more successful than some of the diagrams illustrating apparatus; the first of the latter, for instance, gives a rather misleading idea of the earliest *x*-ray tubes. The substitution of drawings made from radiograms for the unsatisfactory reproduction of the radiograms themselves is a hint for future writers on the subject of the *x* rays. The authors, however, ventured to reproduce one unique radiogram, secured with the aid of a soft tube, showing distinct shadows of the radial and ulnar arteries, made opaque by an excessive calcification of their walls. The unusual appearance certainly to some extent survives the half-tone reproduction. The work as a whole, in spite of the constant developments of a new science, will probably occupy a standard place in British literature for a long time to come.

The extraordinary literary fertility of German radiologists is illustrated again in the massive compilation by Dr. WETTERER, of Mannheim, whose manual of Roentgentherapy[2] is by far the largest work yet issued on a subject which in England has scarcely attained the dignity of a literature. The water-colour drawings by Fraulein Schneider, reproduced by the four-colour printing method, and illustrating the action of tubes and the appearances of irradiated parts, help to give it distinction, and a bibliography containing more than 2,000 references is another valuable feature. Many readers will turn first to the large section devoted to radiumtherapy, in which the differences between the radium and the Roentgen rays as therapeutic agents, together with the indications for the use of the former, are fully canvassed. The author has found that ten-minute contact applications of radium weekly are of value in certain cases of lupus. The hypertrophicus and verrucosus varieties react better to radium treatment than the flat, disseminated disease, which is more amenable to the Finsen light. He describes his method of securing an elective action of the rays by inserting aluminium filters between the capsule and the skin, thereby obtaining deeper effects with less violent surface reactions. In dealing with the biochemical effects of the radium rays, he relates the particulars of some experiments upon rats. Sixty milligrams of highly-active radium bromide, applied for two hours, gave rise to a widespread process of degeneration in the reproductive organs of the animals. The sections on Roentgentherapy cover an immense field, and the statement of the biological side of the question alone would form a substantial treatise. The influence of the *x* rays upon inflammatory processes in the joints is fully treated, and the author cites cases of arthritis deformans within his own practice, in which disappearance of pain and reduction of swelling were brought about by their use. No chapter is more important than that dealing with *x*-ray injuries. These are divided into two classes—that is, primary injuries resulting from absolute or relative over-exposure, and secondary or subsequent injuries due to the cumulative effect of radiations upon the same part. The *x* rays ought under no circumstances to be applied without the most careful use of a dosimeter. Here, he says, punctiliousness becomes a virtue. Absolute over-exposure only takes place, as a rule, if the dosimeter is not used or is used wrongfully—as, for example, if the measuring field be in the region of weak and the irradiated field in the region of intense emissions. By relative over-exposure he means the application of normal doses to extra-sensitive tissue. Upon new patches of psoriasis, for instance, a dose of 5 to 6 H. may cause a stubborn dermatitis or *x*-ray ulcer. As author of a work which indicates wider fields for a new therapy, Dr. Wetterer may, perhaps, be accused of forming the over-estimates of enthusiasm, but his work taps so many sources and invokes so many authorities as to disarm criticism, if not to dispel all doubt. The book is more than a manual; it is an excellently arranged encyclopaedia.

The second edition of Dr. PAUL VAUDET'S *Technique Précise de Radiothérapie et Radioscopie*[3] fully bears out the intention expressed in its title. It is an exposition of exactness in the application of the *x* rays to medicine, and the point wherein it differs from other textbooks of radiotherapeutics is in the emphasis it places upon scientific as against experimental methods. The first edition was published in 1905, and the new volume, which is about half as large again as its predecessor, includes a further section on radiography and radioscopy (screen examination), methods of diagnosis which during the past three years have taken a more important place. The main portion, relating to radiotherapy, might have been brought even more fully up to date, for the Roentgen Society of London has been working very much along the lines indicated by Dr. Vaudet, and some of the conclusions published in its journal respecting the standardization of radio-activity and *x*-ray dosage might have been of service to him. Indeed, one is rather impressed by the absence of the names of British

[1] *A Manual of Practical X-Ray Work.* By David Arthur, M.D., D.P.H., and John Muir, B.Sc., M.B., Ch.B., and B.Sc. (Pub. Health). London: Rebman Limited. 1909. (Demy 8vo, pp. 256, 126 illustrations. 7s. 6d.)

[2] *Handbuch der Röntgentherapie, nebst Anhang die Radiumtherapie* Von Dr. Josef Wetterer. Leipzig: Otto Nemnich. 1908. (Royal 8vo, pp. 910; 198 figures in the text, and 15 plates. M.27.)

[3] *Technique Précise de Radiothérapie et de Radioscopie. (Instrumentation pratique.)* By Dr. P. Vaudet; with a preface by Professo E. Gaucher. Second edition. Paris: Alfred Leclerc. 1908. (Med. 8vo pp. 228, with 20 plates and 23 illustrations in text. Fr. 6.)

workers, both in the chapters themselves and in the ample bibliography which is appended, although, of course, it must be recognized that the pioneers of precise methods in Roentgen work have been Holzknecht, Sabouraud, Kienbock, and Oudin, who belong to the Continent. Dr. Vaudet dates the end of the empiric period and the beginning of the scientific from 1901–2. It was about this time that Holzknecht brought forward his chromo-radiometer, and stated a definite measurement—namely, 5 H. units—as the quantity of x rays that would produce a definite reaction of the skin. Dr. Vaudet elaborates Holzknecht's discoveries, and deals in an interesting way with the conditions necessary to secure equality of irradiation, the laws governing the intensity of x-ray action upon the tissues, the degrees of reaction, periods of latency, and methods of localizing the rays and protecting doctor and patient. He looks forward to the day when it will be possible to prescribe a dose of x rays with the same exactness and certainty as a chemical medicament. The newer part of the book introduces a chapter on the working of the screen stereoscope of M. Estanave of Paris. The chapters dealing with the x-ray diagnosis of fractures are valuable, especially in view of the fact that certain conditions, such as incomplete fracture of the acetabulum, are only recognizable by means of the x rays. The detailed information on the radioscopic examination of the pathological thorax will also be of assistance to those who have difficulty in interpreting the shadows. The book may be heartily commended as affording a glimpse of the refinements practised by French workers.

CANCER.

THE *Lectures on the Pathology of Cancer*[4] which Dr. C. P. WHITE has published were delivered in Manchester in connexion with the Pilkington Cancer Research Fund. The purpose of the author has been to give a general outline of the subject and to call attention to certain points which he considers are neglected or imperfectly dealt with by most writers. The book is divided into four parts, dealing respectively with the classification of tumours, the characteristics of cancer, conditions affecting the origin and development of cancer, and advice as to treatment. As Dr. White holds a particularly high reputation for accurate work and sound criticism in cancer research, we are disappointed to find that in this volume he often contents himself with vague generalities where precise explanations would have been more acceptable. An example may be quoted from page 41, where he is comparing cancer cells with unicellular organisms.

> Whether or not cancer cells show a still closer resemblance to unicellular organisms by occasionally manifesting a sexual process in the course of reproduction is not certainly known, but various observations on the characters of the mitoses in cancers tend to show that such is the case, although some of the changes seem open to doubt.

Evidently Dr. White is not altogether satisfied with certain recent cytological work, and he may have good reasons; but in scientific criticism vague expressions of opinion, such as that quoted, are unsatisfactory. We want definite statements of the work to which the author refers, definite opinions about it, and scientific reasons for these opinions. Much of what Dr. White says about studying cancer in relation to general biological problems is interesting, but there is too great a tendency to lapse into abstract speculation. Liberal use is made—for example, on pp. 45-48—of metaphorical language about stable and unstable equilibrium.

> The immediate essential causal factor of tumour formation is thus an *unstable condition of equilibrium* between the component parts of the body.

Without raising any objection to the use of the term "equilibrium," one would like to know how far its meaning can be expressed in precise language. What are the scientific methods for demonstrating and investigating physiological or pathological "equilibrium" of the tissues? Obviously, in tumour formation, normal intercellular influences are disturbed; but if the conception of "unstable equilibrium" is to be helpful, and not merely a restatement of this obvious fact, it must be shown that the forces which are supposed to be disturbed in their "balance" lend themselves to examination by qualitative and quantitative methods. Dr. White complains that scientists take too strict a view of cellular pathology, and are accustomed to explain all pathological changes by cellular activities, without considering the organism of which the cells are the constituent parts.

> A living organism, however, is not a mere aggregation of cells; it is a distinct entity in itself—an individual—and the cellular activities are everywhere subordinated to the control of the whole organism; . . . the organism does not grow because the cells proliferate, but the cells proliferate because the organism grows.

How does Dr. White propose to study the 'organism as "a distinct entity in itself"? His point of view seems more appropriate for the field of metaphysical speculation than for experimental science. And his criticism that pathologists limit their attention to "mere aggregations of cells" and neglect "the organism" seems to overlook the enormous amount of valuable work which has been done on immunity and kindred subjects. In fact, the most striking feature of experimental pathology at the present day is the prominence which is given to changes which modify the organism as a whole, or, to put it from Dr. White's point of view, which cause the "organism" to modify its own component parts.

Notwithstanding its ambitious title, we doubt if the pamphlet on the genesis of carcinoma, by Professors APOLANT and EHRLICH,[5] tells us much which is new or important about the origin of this disease. Professor Apolant, who contributes the histological portion of the article, calls attention to the rarity with which tumour formation occurs in rabbits and guinea-pigs, as compared with rats and mice; he also observes that for each species of animal there is generally one particular organ which is more likely to be the site of tumour formation than the rest of the tissues. In his histological investigations of mouse tumours he finds no corroboration of Ribbert's theory that inflammatory processes in the connective tissue play an important part in the genesis of cancer. According to Professor Apolant,

> the development of mouse carcinoma, its further differentiation, its definite outcome, and also the formation of sarcoma, are to be regarded as the product of two factors; the one of these is to be found in the biological properties of the tumour cell, the other in the resistance manifested by the organism in relation to this influence. The working of these two factors, in co-ordination or in opposition, determines all the appearances which have been described.

Professor Ehrlich, attacking the same problem from the biological standpoint, elaborates the theory that the influence of defective nutrition (Athrepsie) plays an important part in tumour formation. This view is based on the results of numerous experiments showing that after a preliminary inoculation with a rapidly-growing tumour the growth of a second piece of malignant tissue inoculated into the same mouse is inhibited. His assumption is that the first and vigorously-growing tumour exhausts the requisite nutritive material, and that in consequence the subsequent inoculum is so poorly nourished that growth is either completely inhibited or greatly retarded. It is to be hoped that Professor Ehrlich will be able to elaborate from this line of research some results possessing a practical therapeutic value.

Dr. AICHEL claims that his hypothesis as to the cause and nature of malignant tumours[6] is new. For the precise grounds on which he ascribes novelty to his theory we must refer our readers to the text; we find them a little difficult to understand, and we confess that his suggestions seem to us to be closely akin to a cancer hypothesis which is very ancient indeed. Malignant growths, according to Dr. Aichel, can only arise when the somatic cells have absorbed from without a "something" which transforms them into malignant cells. He therefore sets himself the task of ascertaining what this "something" is. After considering various other possible agents and rejecting them in turn, he arrived at the conclusion that the "something" consists of leucocytes. "The normal somatic cell through fusion (Amphimixis)

[4] *Lectures on the Pathology of Cancer.* By Charles Powell White, M.A., M.D., F.R.C.S. Manchester: University Press. 1908. (Sup. roy. 8vo, pp. 84, with 33 illustrations. 3s. 6d.)

[5] *Ueber die Genese des Carcinoms.* Von H. Apolant und P. Ehrlich. Jena: Gustav Fischer. 1908. (Sup. roy. 8vo, pp. 34. M. 1.)

[6] *Eine neue Hypothese ueber Ursachen und Wesen bösartiger Geschwülste.* Von Dr. Otto Aichel. München: J. F. Lehmann. 1908. (Sup. roy. 8vo, pp. 36. M. 1.50.)

with a leucocyte produces the malignant cell, and from this, through cellular division, a malignant tumour arises." We are not convinced that Dr. Aichel, in the development of this theme, has made any substantial advance on other well-known suggestions that the malignant cell arises from hybrid fertilization by a leucocyte.

GLANDERS.

IN this book, *Glanders: A Clinical Treatise*,[7] Mr. WILLIAM HUNTING has condensed a great deal of the practical experience of a lifetime. He has kept pace with the discoveries of *Bacillus mallei* and mallein; he has seen the identity of glanders and farcy (the cutaneous form) settled beyond dispute; he has had a large share in influencing and shaping the new regulations for the control of glanders, and now, as chief veterinary inspector of the London County Council, he has a leading share in carrying into actual practice the provisions of the Glanders Order for 1907, so largely inspired by him. The book, then, is the outcome of unique opportunities, and from the clinical and hygienic point of view it is extremely valuable. It does not attempt a complete account of the pathology and bacteriology of glanders, but for the veterinary clinician and for the horse owner it is full of valuable advice the outcome of acute and discriminating observation. The use of mallein is described in detail, and the author points out how, under the old Order of 1894, it was possible for owners to detect disease before it was evidenced by any symptoms; they could then sell the latently-infected horse, and so spread glanders to distant parts of the country. Table IV, illustrating the distribution of glanders, shows that 90 per cent. of the total cases occur in London and the home counties. "I was rash enough a few years ago," the author writes, "to express the opinion that a horse was not infective until clinical symptoms were developed. That was a grave error. . . ." After this renunciation, the author mentions conditions in apparently healthy horses affected with latent glanders which may be dangerous, especially those in which the trachea is ulcerated—a not uncommon lesion. With regard to the method of infection, the author is emphatically in favour of the view that it takes place usually by ingestion; he almost denies the possibility of infection by inhalation, and somewhat unnecessarily attacks the theory of aërial infection in tuberculosis. Speaking of prevention, there are some statements of great interest to private horse owners —namely the dangers (1) of sending horses to livery stables when the owner goes out of town; (2) of turning horses out to grass in the company of other strange horses; (3) of horses being stabled with strange horses at army manœuvres; and (4) of buying old cast horses from London stables without previous testing with mallein. There is a valuable appendix dealing with cases of glanders in man, and a number of such cases are briefly described. Some of the literature on the subject is mentioned, although in this respect more detail would have been an advantage. The author draws attention to the fact that glanders has been scheduled as an industrial disease, so that employers are liable for compensation; also that by the Glanders Order of 1907 veterinary inspectors have to notify the medical officer of health of cases of glanders. One of the most valuable features of a valuable book is the series of fourteen beautifully executed coloured plates, showing typical lesions of glanders in horses.

THE CRIMINAL: PROPHYLAXIS AND TREATMENT.

IN comparatively small compass the author of this valuable little book, *The Principles of Anthropology and Sociology in their Relations to Criminal Procedure*,[8] discusses on the one hand the development and conclusions of criminal anthropology and criminal sociology, and, on the other hand, criminal law and procedure. The first three chapters are devoted to a succinct account of the principles of the classical school of criminology and the rise of the modern science of positive criminology, as embodied principally in the teachings of Lombroso, Garofalo, and Ferri; to criminal sociology and to the relation of the criminal to society and the question of penal responsibility. In the two succeeding chapters punishment and the bearing of modern views of the nature of criminality upon criminal law are ably expounded. Thereafter follow descriptions and analyses of the fundamental principles of Anglo-American and Continental criminal law and procedure. After that, in each succeeding chapter, one part of criminal procedure is taken and examined in the light of modern criminological science, suggestions as to alterations and reforms being made at the end of each chapter. The accounts of criminal anthropology and sociology are less happy than those in which comparative criminal law and procedure are treated, the author being somewhat too ready to accept the Lombrosian stigmata as of proved distinctive value. Beyond this, however, we have nothing to utter but praise. The descriptions of comparative criminal procedure are clear and instructive, and the author's criticisms and suggested alterations well worthy of consideration. Perhaps we can best convey the essence of his view of the whole matter by saying that, in his opinion, the sole logical basis of all legal action against the criminal should be the fact and degree of his dangerousness to society, and should not be based on moral or ethical grounds, on the principle of moral liberty or free will. If only this great principle of danger to society be accepted as criterion, most of the reforms in criminal law and procedure—such as the substitution of detention and reform for punishment, the fitting of the degree of repression to the criminality of the delinquent and not to the crime itself, and many other reforms as to prosecution, defence, and simplification of the law must inevitably follow. We hope this book will be widely read.

Another recently-issued book dealing with the same matter, though more restricted in scope and largely statistical in treatment, is a monograph, entitled *Britain's Blot*,[9] by Dr. J. F. SUTHERLAND, Deputy Commissioner in Lunacy for Scotland. Dr. Sutherland has had twenty-eight years' experience of lunacy, inebriety, and delinquency in Scotland, and is thus well qualified to speak with authority. He is convinced that there are two distinct types of recidivist—namely, the habitual petty delinquent and the habitual criminal, between whom there is nothing in common save their haunts. Further, in each class there is a proportion—in the petty delinquents a large and in the habitual criminals a small proportion—of psycho-pathological cases. An important conclusion arrived at by the author is that there is no established connexion between drink and professional criminality, or, if there be any link, that it is slender and remote. As already stated, a large part of this book is statistical, the figures and maps given relating to the relative incidence of the several crimes and their topographical distribution in Great Britain; but admirable summaries are given also of modern views on criminal anthropology, illustrated by anthropometrical data collected in Scotland, and of the penal systems which obtain in America and on the Continent. Following this, the author discusses prophylaxis, jurisprudence, and penology, and then states his own suggestions for juridical and penal reform. With regard to criminal responsibility, we note that under the heading of "The Criminal Law in Relation to Free Will, Responsibility, and Punishment," Dr. Sutherland says, "a safe and sociological maxim is that the idea of wrong depends upon the moral, intellectual, and physical damage which volition and action bring to society;" and later on, "it might well be that the main purpose of punishment should be the protection of society and of property by the reclamation by improved methods of habitual criminals and offenders who are salvable, and by the sequestration of those not so under safeguards." In this Dr. Sutherland appears to share the views of the writer reviewed immediately above, but we do not gather that he, like some other modern criminologists, would exclude the question of responsibility altogether, for in discussing the free-will question he avows himself neither a free-willer nor a determinist, but expounds a

[7] *Glanders: A Clinical Treatise.* By William Hunting, F.R.C.V.S. London: H. and W. Brown. 1908. (Demy 4to, pp. 100, three full-page photos, and 14 coloured plates. 10s. 6d.)

[8] *The Principles of Anthropology and Sociology in their Relations to Criminal Procedure.* By Maurice Parmelee, M.A. The Citizen's Library of Economics, Politics, and Sociology. New York and London: Macmillan. 1908. (Cr. 8vo, pp. 418. 5s.)

[9] *Britain's Blot: Recidivism, Criminality, and Habitual Petty Delinquency: A Problem in Sociology, Psycho-Pathology, and Criminology.* By J. F. Sutherland, M.D.Edin., F.R.S.E., F.S.S. Edinburgh: William Green and Sons. 1908. (Med. 8vo, pp. 126. 3s.)

compromising "relativity" which appears to be midway between these two positions, enjoying the advantages of neither. Notwithstanding the passages quoted above, therefore, we doubt whether Dr. Sutherland would follow the bold lead of some who would exclude the moral liberty question altogether, and say that the question in every case is not, Is this man responsible or irresponsible? but Is this man dangerous to society, and, if so, how dangerous? Dr. Sutherland's book contains a great deal of valuable information in small compass.

In the year 1904 a book by Professor ERNST SCHULTZE of Bonn,[10] published that year, entitled, The Psychoses of Military Prisoners, formed the subject of an article in the BRITISH MEDICAL JOURNAL of May 28th, 1904, on Dementia Praecox and Simulation. In that book Professor Schultze showed how considerable were the numbers of insane military prisoners who had been repeatedly punished for various offences—notably desertion—which subsequent events left no doubt were directly traceable to early but undetected mental disorder. To prevent such occurrences Professor Schultze made several important suggestions, including a compulsory two years' training in mental diseases for all army medical men, a period of mental observation for all persistently refractory soldiers, the employment of mental experts in all doubtful cases, and a regular and systematic inquiry into the mental history and character of all recruits and candidates for the army. Since the date of his earlier work Professor Schultze has had the opportunity of investigating the mental state of fifty-one more military prisoners, before his removal to Greifswald put an end to his opportunity of observing such cases, and the results of his investigations were published in 1907.[11] To a considerable extent Professor Schultze's task as reformer has been lightened, for many of the suggestions he made have been put into effect; for instance, recruits now bear with them to the army on joining an account of their school life. Professor Schultze devotes the first five chapters of his new volume to the clinical histories arranged under the categories of manic-depressive insanity, feeble-mindedness, hysteria, epilepsy, and dementia praecox. Lengthy clinical notes, however, are omitted, as sufficient for the purpose were published in the first book. Feeble-mindedness is treated at considerable length, as this forms one of the most important considerations in the question of treating military prisoners. In the next chapter are discussed some cases which do not fall within any of the above categories, and in the last chapter, which takes up more than half the book, Professor Schultze considers the total clinical material with particular reference to the sources of failure to diagnose the condition, the recognition of simulation, the connexion between the mental disorder and the acts for which the individuals were punished, and finally makes further suggestions as to reform. Without entering into details, we may mention that the first work gave an account of the histories, offences, and mental status of 32 insane or mentally defective military prisoners, and the second book of 51 more; making, with 17 cases sent from the Andernach Asylum, 100 cases in all. A large proportion were of either illegitimate or uncertain birth; about one-half were more or less given to alcoholic abuse, and 64, or about two-thirds, had been previously punished, that is, before the committal of the military offence. Naturally, repeated offences were most common in the imbecile class, and in some of these were of great frequency; for example, one had been punished 33 times, another 26 times, and another 16 times. Hysteria and epilepsy came next in frequency, then manic-depressive insanity, and dementia praecox last. Although the histories of cases described in the first work have been continued and brought up to date, so far as possible, in the present book, the matter has been so treated that a knowledge of the former is not presumed. Nevertheless, we should strongly advise those interested in the subject to procure both works. The books will be found to be of the greatest interest and value to criminologists generally.

[10] *Ueber Psychosen bei Militärgefangenen nebst Reformvorschlägen.* Eine klinische Studie. By Professor Dr. Ernst Schultze. Jena: Gustav Fischer. 1904.

[11] *Weitere psychiatrische Beobachtungen an Militärgefangenen.* By Dr. Ernst Schultze. Jena: Gustav Fischer. 1907. (Roy. 8vo, pp. 138. M.3.)

SQUIRE'S "COMPANION."

SQUIRE'S *Companion to the British Pharmacopoeia* is so well known to prescribers of any therapeutic enterprise that it might seem to be sufficient merely to announce the fact that an eighteenth edition has appeared; but this edition has undergone so much revision and expansion that it becomes a duty to give some account of the new volume. Over half a century ago the late Mr. Peter Squire published a comparison of the London, Edinburgh, and Dublin pharmacopoeias, and this was succeeded in 1864 by the first edition of the *Companion*, which contained 220 pages. The new edition[12] contains 1,460 pages—610 more than were contained in the seventeenth edition, published nine years ago. The book, in accordance with its title, follows generally the arrangement of the *British Pharmacopoeia*, but the official preparations are given under the main heading; thus, under "Hydrargyrum" we find the official plasters, liniment, pill, and ointments, and this is followed by notes upon non-official preparations. After the official title of each drug are given the synonyms, and, in the case of all important drugs, the French, German, Italian, and Spanish equivalents, when they are known. The later headings in each article are solubility, medicinal properties, dose, prescribing notes, incompatibles, official preparations, preparations which are not official, antidotes, foreign pharmacopoeias, descriptive notes and tests.

From the first appearance of the *Companion* the subject of solubility has received particular notice, and in the present edition closer attention and a very much larger number of figures have been included. It was suggested in the BRITISH MEDICAL JOURNAL that in those instances in which a substance is extremely soluble in a menstruum the increase in volume caused by its solution should be given. In the more commonly prescribed chemicals this suggestion has been followed in the present edition—thus, ammonium bromide, 1 in 1½ of water measures 2; ammonium phosphate, 1 in 2 of water measures 2½; potassium iodide, 4 in 3 of water measures 4; and quinine bihydrochloride, 2 in 1½ of water measures 3. The prescribing notes have been considerably enlarged, and we are informed, and can well believe, that they have involved a very large number of practical experiments. We agree that it is in the best interests both of medicine and pharmacy to give such a note, which is of more value than to suggest a fixed formula, as it leaves the physician a judicious liberty in varying the quantities of the active ingredients in accordance with the requirements of the individual patient. The notes on preparations contained in foreign pharmacopoeias will also be useful as an aid to prescribers, beyond their more immediate purpose of indicating, in the case of patients residing abroad, the character and strength of preparations useful in various countries. The notes on medicinal properties, which have been read and revised by Dr. Taylor Grant, are brief, and, as a rule at any rate, very much to the point. The descriptive notes have been read by Mr. E. Morrell Holmes. The paragraphs on tests have been rewritten, and particular attention has been given to the methods for the detection of likely and unlikely impurities.

The doses mentioned are those in which the substance is usually given, but in the cases of potent chemicals, drugs, or preparations, the doses are compared with the maximum single and daily doses of one or other of the more important foreign pharmacopoeias, or where such information is not available, with a textbook of recognized foreign standing such as Hager. The tabulated comparison of the chief standardized potent preparations of the British, United States, German, and French pharmacopoeias will be found useful for reference. A chapter on thermometric memoranda and special tests has been included. The article, on therapeutic agents of microbial origin, has been revised and partly rewritten by Dr. R. Tanner Hewlett. The concluding portions of the book are occupied by lists of the spas of Europe, enumerating first those of Britain, afterwards the Continental, giving the locality, temperature, season and medicinal properties; a list of spas classified according to their temperature and properties is also given. There are three indices—a therapeutical classification of remedies, a list of remedies for special ailments, and a general index.

We often hear complaints that the art of prescribing is

[12] Squire's *Companion to the British Pharmacopoeia*. Eighteenth edition. London: J. and A. Churchill. (14s.)

being lost, and that the younger generation is tempted more and more to rely upon the ready-made mixtures, pills, and tablets which enterprising wholesale firms present to notice. A book such as this should afford the best remedy, for it gives in a convenient and reliable form just such information as the prescriber needs when he desires to step a little outside his own beaten track.

DERMATOLOGY.

THE new and enlarged edition of the justly popular manual, *Diseases of the Skin*,[13] by Sir MALCOLM MORRIS, has been brought up to date by him, with the assistance of Dr. ERNEST DORE. The large amount of work done in the dermatological world since the third edition was published (in 1903) has necessitated increasing the book by forty-eight pages, but at the same time the object of the author to write a manual and not a treatise has been well kept in view, with the result that a very handy volume has been produced. A feature of the work is that the index, which by the way is very full, enables the reader to see at a glance the main lines of treatment available in any given disease. A careful perusal of this well-known manual proves that the authors have done their work of revision thoroughly. They have been discriminate in their selection of material, and there is no doubt the book fully deserves the favour it has met with in the past. The plates are excellent and add to the value of the book.

A book, *Die Praxis der Hautkrankheiten*, embodying and founded on the dermatological teaching of Dr. Unna, has been recently brought out by Dr. IWAN BLOCH.[14] It is a large, closely-printed volume, that will repay perusal on a variety of points which have been investigated in an original and special way by Dr. Unna; and it may be said at once that the author has very thoroughly assimilated the master's teachings, but he has unfortunately produced an unwieldy and indigestible morsel, made up of a minced-up mass of details. Notwithstanding this drawback, the work is one that will be used for reference with profit by all specially interested in diseases of the skin; the more so as a good index is provided. The introductory chapters on the anatomo-physiological aspects of the subject and the histological and staining technic are of special importance, for dermatology is much indebted to Dr. Unna for the staining methods he has introduced and perfected. In the sections on pathology and treatment again valuable information is given.

The *Treatise on Diseases of the Skin*,[15] by Professor STELWAGON, of Philadelphia, which has been several times dealt with in these pages, continues to enjoy such popularity that a fifth edition has been called for. In this instance the high praise already bestowed upon this excellent work can merely be repeated. But it should be added that the present issue has been thoroughly revised. The book is in every way excellent—text, illustrations, and form, making it one of the foremost works of reference on a subject of great complexity.

Earlier editions of Dr. NORMAN WALKER'S *Introduction to Dermatology*[16] have been reviewed in these columns, and the popularity of the book can be gauged from the fact that a fourth edition has been called for. With every edition there is distinct improvement. The coloured illustrations are very good, and show a great advance in artistic merit on those of previous editions. This is due to the excellent casts of Dr. Cranston Low. In his preface the author states his belief—one shared by many teachers—that students are none the worse for being taught dogmatically. It must not be forgotten, however, that dogmatic teaching if pushed too far, may interfere with the free play of the power of observation. Some of the greatest clinical teachers have followed what may be called the Socratic method, which, while it does not eliminate judicious dogmatism, at the same time stimulates the power of reasoning from observation. As an introduction to dermatology, Dr. Walker's book can be highly recommended. The diagrams showing the microscopical characters of the various morbid conditions are most valuable, for a know ledge of these lesions is of the utmost importance in diagnosis and treatment.

[13] *Diseases of the Skin: An Outline of the Principles and Practice of Dermatology.* By Sir Malcolm Morris, K.C.V.O., etc., with the assistance of Ernest Dore, M.D., etc. London: Cassell and Co. 1908. (Crown 8vo, pp. 702, 10 coloured and 47 black and white plates, with illustrations in text. 10s. 6d.)

[14] *Die Praxis der Hautkrankheiten* [The Practice of Skin Diseases]. Unna's Lehrern. Von Dr. Iwan Bloch. Berlin und Wien: Urban and Schwarzenberg. 1908. (Sup. roy. 8vo, pp. 712: 92 illustrations. M.18.)

[15] *Treatise on Diseases of the Skin, for the Use of Advanced Students and Practitioners.* By Henry W. Stelwagon, M.D., Ph.D. Fifth edition. Philadelphia and London: W. B. Saunders Company. 1907. (Royal 8vo, pp. 1150, 267 illustrations and 34 full-page coloured and half-tone plates. 25s.)

[16] *An Introduction to Dermatology.* By Norman Walker, M.D., F.R.C.P. Fourth Edition. Edinburgh and London: W. Green and Sons. 1908. (Demy 8vo, pp. 350; with 28 coloured plates and 69 illustrations. 9s. 6d.)

THE SENSES OF INSECTS.

THE name of Forel is so well known as that of an accomplished observer of what used to be called, and what might still very well be called, the habits of insects, that the reader will take up the volume entitled *The Senses of Insects*[17] with the expectation of being at once instructed, interested, and even amused. Nor will he be disappointed, for the book teems with striking original observations, with acute reasoning and with scathing criticism. But if the reader hopes to find in it a reasonably brief and consecutive statement of Forel's own conclusions, he will be deceived. The book consists of a series of papers written at different times, and later on collected into a budget, which took a long time to get published; additional notes, comments, and criticisms being added here and there. Mr. MACLEOD YEARSLEY, to whom the work of translation has clearly been a labour of love, has, as he explains in his preface, done something to put the several sections into logical order, but he has not felt justified in omitting or paraphrasing Forel's polemics, which render the book a study in the psychology of man as well as insects.

Having said so much by way of doing our duty, and warning the reader of the kind of book he is asked to buy, we may go on to commend it most heartily to every one who has a love for natural history. The old-fashioned term is used advisedly, for it is by no means necessary to be a specialist in order to enjoy nearly every page. There is so much that is curious, so much that is stimulating to thought, so much indeed, if we are in a mood to be metaphysical, that goes to the very root problems of existence.

After nine chapters on vision, smell and taste, and hearing, we find two on orientation in space which to many readers will prove the most interesting part of the volume. Forel rejects utterly, and with vehemence, the theories of a special mysterious force, or of a static or geotropic sense. Orientation, or the so-called homing sense, is, he says, the result of experience gained through known senses, especially sight and smell. In aërial flight it is the sense of sight which is most important, and, in the bee as in the pigeon, is probably the only sense concerned.

Mr. Yearsley has added some explanatory footnotes, the longest containing a triumphant criticism of the assertions of Cyon and others with regard to Japanese dancing mice. The assertion is that this animal possesses only a single semicircular canal. Mr. Yearsley quotes Dr. Gray of Glasgow, who has dissected the ear, and can find no difference between the canals of the waltzing and those of the ordinary mice. The point is illustrated by the reproduction of a very beautiful preparation by Dr. Gray in which the three canals are very plainly visible.

NOTES ON BOOKS.

THE thirty-fifth volume of *St. Thomas's Hospital Reports* for 1908 is edited by Dr. H. G. TURNEY and Mr. W. H. BATTLE.[18] Besides the ordinary medical, surgical, and gynaecological reports by the respective registrars, and those of the various special departments by members of the honorary staff, there is a report for 1906 from the Clinical and Pathological Laboratories by Dr. Leonard Dudgeon and one from the *X*-ray Department by Dr. Greg. The volume also contains four original papers—

[17] *The Senses of Insects.* By A. Forel. Translated by Macleod Yearsley, F.R.C.S. London: Methuen and Co. (Med. 8vo, pp. 340. 10s. 6d.)

[18] *St. Thomas's Hospital Reports.* New Series. Edited by Dr. H. G. Turney and Mr. W. H. Battle. Vol. xxxv. London: J. and A. Churchill. 1908. (Demy 8vo, pp. 512. 8s. 6d.)

one on the reduction *en masse* of strangulated and non-strangulated herniae, by Mr. A. B. Howitt and Mr. Edred Corner, who also contribute one on the treatment of gangrene in strangulated herniae; a third on the etiology of the granular kidney of childhood, by Dr. J. E. H. Sawyer, in which he suggests a similar causation as for the more rapidly progressing cirrhosis of the liver; and a fourth on the bacteriology of the more unusual forms of conjunctivitis, by Mr. P. N. Panton.

The third volume of the eighteenth series of *International Clinics* for 1908[19] contains an unusually large number of papers—twenty-five in all. Among them is one by Dr. J. Jastrow, entitled, On the Trail of the Subconscious, and another on Chronic Milk Infection (Marasmus), by Dr. R. B. Gilbert. But that which for its subject-matter is especially valuable is one by Mr. James Sherren on the diagnosis of injuries of the peripheral nerves from those of the spinal cord, in which he applies the conjoint observations of himself and Dr. Head to practical surgery.

The twentieth volume of the *Transactions of the Southern Surgical and Gynaecological Association* covers the work done at the annual meeting held in New Orleans in December, 1907. It has been edited by Dr. W. D. Haggard, and is notable for the excellent reproduction of engravings and other pictures of an early date, dealing with subjects connected with anatomy, surgery, and gynaecology, with which the address delivered by the President, Dr. Howard A. Kelly, of Baltimore, on art applied to medicine and surgery, is illustrated. Apart from this interesting paper, there are some fifty others dealing with various points in surgery. The majority deal with general surgery rather than the special field of gynaecologists. Included is an excellent and prolonged discussion on the treatment of fractures.

In the autumn of 1907 the dermatologists gathered in force in New York, and as an outcome we have received two portly volumes entitled the *Transactions of the Sixth International Dermatological Congress, 1907*.[20] Each of these volumes contains some 500 pages, and both are adorned by numerous plates. The book doubtless constitutes a mine of information with regard to current opinions on dermatological subjects; but though there are lists of specimens exhibited and of cases shown, and of contributors, and something in the way of a general index, there is no general list of papers read. It is to be feared, therefore, that much of the excellent work done at this congress will be utilized by a far smaller number of persons than might otherwise be the case.

[19] *International Clinics.* A Quarterly. Edited by W. T. Longcope. M.D. Eighteenth series, 1908. Philadelphia and London: J. B Lippincott Co. 1908. (Roy. 8vo. pp. 306.)

[20] *Transactions of the Sixth International Dermatological Congress.* Edited by Dr. J. A. Fordyce, Secretary-General. New York: The Knickerbocker Press. 1908.

MEDICINAL AND DIETETIC PREPARATIONS.

ORGANIC ARSENIC COMPOUNDS.

"Kharsin" and "Orsudan."—Two new organic compounds of arsenium have been recently introduced by Messrs. Burroughs, Wellcome, and Co. (Snow Hill, London, E.C.), under the names "Kharsin" and "Orsudan." Kharsin is described as sodium 3-methyl-4-aminophenyl-arsonate, containing 23.7 per cent. of the element arsenium, and Orsudan as its acetyl derivative, containing 25.4 per cent. of arsenium. Both are white crystalline powders, very readily soluble in water; they are also supplied in the form of 1-grain tabloids, for administration by hypodermic injection or by the mouth. Specimens of these which we examined dissolved completely with great readiness.

Arsacetin.—We have received from Messrs. Meister, Lucius, and Brüning, Limited (51, St. Mary Axe, London, E.C.) a specimen of a new organic arsenium compound which they have recently introduced under the name "Arsacetin." This is described as sodium para-acetyl-amino-phenylarsinate, or acetyl-atoxyl, and it is stated that the introduction of the acetyl group results in producing a compound of much lower toxicity (just as acetanilide is less toxic than aniline, or phenacetin than phenetidine), and of greater stability and similar therapeutic effect. Arsacetin is a crystalline white powder, readily soluble in water; examination showed it to be free from inorganic arsenious and arsenic compounds, while rich in arsenium.

Preparations of Atoxyl.—Messrs. R. W. Greeff and Co. (20, Eastcheap, London, E.C.) have forwarded samples of various preparations for the administration of atoxyl (sodium para-amino-phenylarsinate). These include tablets containing 0.05 gram (¾ grain) of atoxyl with sugar of milk; tablets containing the same amount together with ¾ grain of lactate of iron; capsules containing 5 grains of Blaud's pill mass with ¾ grain of atoxyl; and ampoules of solution of atoxyl for hypodermic injection. Examination of the specimens showed that the tablets disintegrated well in water; the capsules contained the iron in the ferrous condition, but the envelope did not dissolve at all readily when shaken in warm water.

Hydrogen Peroxide.

Messrs. McKesson and Robbins (New York; London agent, Mr. A. C. Wootton, 14, Trinity Square, E.C.) supply a stable solution of hydrogen peroxide for medical and surgical purposes, under the name "Pyrozone." This is a 3 per cent. solution, and it is claimed that it will keep for at least six months without loss of strength. We have recently examined a specimen which had been in our keeping for over seven months, and found it to contain just 3.0 per cent. of real peroxide, with only 0.05 per cent. of mineral acid.

Compound Liquorice Powder without Sugar.

Messrs. Lorimer and Co. (Britannia Row, Islington, N.) have submitted a sample of their Pulv. Glycyrrh. Co. sine Saccharo, in which sugar is omitted and the powder sweetened with saccharin. The dose is thereby reduced to one-half, and the powder is made more suitable for use by diabetic or gouty patients.

MEDICAL AND SURGICAL APPLIANCES.

The Single-Service Milk Container.

A MONO-SERVICE MILK-PAIL which seemed to offer several advantages in the distribution of milk and its care after reaching the household was noticed in this column on June 15th, 1907. We have recently received from America a pamphlet dealing with the "Single-service Container," and describing a paper vessel which seems to be identical with the mono-service milk-pail with the exception of an alteration in the lid. Along with the pamphlet is enclosed a report on the appliance from Dr. A. H. Stewart of the Bacteriological Laboratory of the Bureau of Health, Philadelphia. This report is entirely favourable, and Dr. Stewart states that the milk contained in the single-service container is cleaner bacteriologically and will keep two days longer sweet than that in the ordinary glass bottle. Amongst other advantages of the container over the glass bottle, he enumerates the low initial cost and the absence of loss from breakage, the saving of labour and money in the re-collection and cleansing, lessened weight, and the impossibility of contamination in transit. With these opinions we see no reason to differ. As the containers can be supplied at a cost of 1d. for 20 quart or 25 pint vessels there should be an ultimate saving in their use over that of glass bottles. We should be pleased to see one of the large dairy companies giving the apparatus a trial.

A Help for Very Bad Sight.

One of the most useful appliances which we have recently seen for the assistance of those unfortunate cases which have but little vision left in the only seeing eye is a spectacle suggested and used for some years in suitable cases by Mr. R. W. Doyne, of London and Oxford. It consists simply of an aplanatic lens of about 14 or 15 D. set in a spectacle frame, and having fixed in front of it a bar which is adjusted so that when it is touching the paper which the patient is about to read things are at the best focus, while it also indicates to the patient the line which he is reading. Every one knows how a patient with perhaps advanced optic atrophy is enabled just to read with a large convex lens which greatly magnifies the print. The great disadvantage of this is that the lens must be held in one hand and moved backwards and forwards, so that it is never steady, nor is it kept at the right focus. This disadvantage is completely done away with in the instrument under notice, while the patient very soon gets to be able to run his eye along the line with ease and precision. Its limits must be recognized. It is utterly unsuitable and useless for any one with binocular vision, or who can in any way use the two eyes; it should only be ordered for patients who have but one eye effective, the sight of which is so bad that only by strong magnification of the print is reading possible. The instrument is made by Messrs. Davidson and Co., Opticians, Great Portland Street, W.

ROYAL COMMISSION ON VIVISECTION.

FOURTH REPORT.

(Continued from page 288.)

WE continue our abstracts from the evidence of which the minutes are contained in the fourth report of the Royal Commission on Vivisection, issued in December, 1907.*

Evidence of Professor Lorrain Smith.

Dr. Lorrain Smith gave evidence on behalf of the University of Manchester and the Pathological Society of Great Britain and Ireland. After describing the experimental work carried on at the university, he said the work of the public health laboratories was highly valued by a large number of local authorities, representing about five millions of people, and officers of public health found their reports of great value as regarded the detection and prevention of the spread of disease. Some of the hospitals also availed themselves of these reports, which were often very helpful in diagnosis. The university had never had reason to find fault with any of the licensees for the manner in which the experiments had been carried out. It considered further restrictive measures unnecessary and undesirable. The experiments necessary in the Public Health Laboratory were practically all inoculations. Over 2,000 animals a year were used for investigations for sanitary authorities. The cases of diagnosis of diphtheria in which it was found necessary to resort to other than cultural or microscopic investigation was a very small proportion. In his own department experiments were made for purposes of investigation chiefly. He had conducted a good deal of research at Belfast; this included researches into conjunctivitis. It was not inoculation in the sense of taking a definite bacillus or streptococcus of a known virulence; it was rather an accidental inoculation which might arise from merely wounding the surface. So far as he could observe there was no great pain in these experiments. The eyeball did not slough; there was only a little conjunctivitis. The aim of the experiments was to avoid severe effects on the part. The animal was kept, he thought, a month or two afterwards. Then the eyes were examined microscopically after death to see if one could discover any trace of inflammation or any degeneration, or even the presence of microbes. But they discovered nothing by that method. The witness then described the aim and methods of pathological investigation. He dwelt on the fact that the point arrived in the investigation of disease when progress was practically stayed unless one had recourse to experimental methods. Arterio-sclerosis was a disease of the walls of arteries of insidious origin, commencing usually at about middle life and gradually progressing until it became directly or indirectly a cause of death. It led to haemorrhage and softening of the brain, to various forms of heart disease, and to a slowly developing form of Bright's disease. The various forms of the disease had been carefully described, but its cause was not known, and to gain this information they required to have in their possession some agent which would set up the process. Josué made the discovery in 1903 that repeated injections of adrenalin into the circulation of rabbits set up a form of arterio-sclerosis in the walls of the vessels. Adrenalin promised to be of still greater value, since it might enable them to discover the cause of arterio-sclerosis. Then pneumonia was one of the most common of acute diseases, and might be studied in two ways: (1) The bacteria which caused it, and (2) the conditions of the patient which rendered him liable to become infected. The second only concerned him at that time. People carried about in their mouths and elsewhere the bacteria which caused pneumonia. Hence, the question before the pathologist was not merely to explain where the infection came from, but the conditions of the patient which permitted the pneumococcus to spread from its usual haunt in the mouth and throat and find its way to the lungs, where it set up inflammation. In order to work out these conditions one point to which to direct attention was the lungs themselves. Could an agent be found which in itself might be used to cause pneumonia without the aid of bacteria? Such an agent had recently been discovered by the experimental method. It had been found that to submit an animal to an atmosphere of oxygen would, ere long, bring on pneumonia. The simplest possible way, therefore, of working out these conditions, so far as the lung itself was concerned, was to place the animal in an atmosphere richer in oxygen than the air they normally breathed. Pneumonia had been very fully studied by the methods of morbid anatomy, and the data obtained were of great value in enabling them to understand the cause of the disease, but they had yet much to learn regarding the activity of the lung and its relation to the onset of inflammation. It was at this stage of the problem that experimental investigation became necessary in order to test the truth of hypotheses suggested by the data obtained. A third illustration he had taken from a study of derangements in metabolism. The commonest and most important of these was fatty degeneration. Such a change was seen, for example, in cases of poisoning by arsenic, but that disturbance might be due to a large variety of causes. It occurred more or less universally in gland cells, and its importance might be gathered from the fact that in the muscular fibres of the heart wall it formed one of the most serious types of heart disease. In regard to this condition a great amount of information had been obtained by means of starvation experiments. It was thought that fat appeared in the cells, say, of the liver in such conditions from dilapidation of the cell substances; but by means of these experiments evidence had been obtained that the presence of fat was in many cases to be explained by the absorption by these cells of fat transported by the blood from the tissues under the skin and elsewhere which normally contained fat. The starvation experiments consisted in depriving the animal of food. The animals were dogs and birds. In order to study the kind of fat found in the process of degeneration, the animal was deprived of food until its body contained little or no fat. They were supplied with water. They were deprived of food for a week or two, or even for a month. At the end of that time the animals were fed up again. They showed no symptoms of pain. They were unhappy; there were no particular symptoms. In fact, there was an experiment on record where the milk of a bitch was studied after a period of starvation in this way. It had had puppies, and was able to suckle them. After the animals were starved of fat they were fed with fat of other animals which was of a different character. Then one could follow the relation of this abnormal fat to other tissue changes. A great deal of light had thus been thrown on the process of fatty degeneration. Another important branch of this investigation was exemplified by nervous disease. It had been for years a well-established fact that one of the earliest changes in nervous disease was a breaking down of the nervous tissue system into fat, which was absorbed by lymphatics and disappeared. These changes were found in the dead body in damaged nerves in the spinal cord and brain, and the investigation of them had been carried out by the methods of morbid anatomy with great energy and success. Since it had been discovered that changes of this nature were found in the spinal cord associated with the occurrence of local inflammation elsewhere, as, for example, the presence of pus in the pleural cavity, this form of tissue disintegration had been taken up experimentally, and it had been shown that slow absorption of the poisons generated by bacteria took place along the nerve sheath, and that these poisons on reaching the spinal cord set up fatty changes in the tissue of the spinal cord at the point where the nerve branched off. In other words, they had obtained a new means of attacking the obscure problem of the causation of such diseases as general paralysis, locomotor ataxia, and recurrent insanity. Asked if he had been successful with animals in stopping cases which he believed he saw, he said it was rather early to say that, because the research was just in process. He considered there was very reasonable prospect of success. Finally, he wished to refer to a disease regarding the causation of which they had as yet no knowledge—rheumatoid arthritis and osteo-arthritis. What in that case was required above all things was the means of experimental

* London: Printed for His Majesty's Stationery Office, by Wyman and Sons, Limited, 109, Fetter Lane, E.C. And to be purchased, either directly or through any bookseller, from Wyman and Sons, 109, Fetter Lane, Fleet Street, E.C.; and 32, Abingdon Street, Westminster, S.W.; or Oliver and Boyd, Edinburgh; or E. Ponsonby, 116, Grafton Street, Dublin. (1908.)

investigation of the disease. Something very similar to the disease was found in animals. So far they had not been able to reproduce it. Asked by Colonel Lockwood if he had any objection to the present restrictions placed by law upon operations on living animals, the witness said, No. He did not know that it had placed Englishmen at a very serious disadvantage as compared with other nations. In reply to further questions, he said he thought he would be expressing the feeling of pathologists that further restrictions would delay research, and so far they would object to them. He had seen a fair number of experiments upon living animals, and had never seen any cruelty connected with them. In all the cutting experiments he had witnessed the animals had always been under anaesthetics. He had witnessed none of the starvation experiments to which he had referred. They were not carried on in England. Asked by Sir William Collins what had been learnt by experiments on animals in addition to Gull's and Sutton's work, Dr. Lorrain Smith said they had learnt that they had got a substance that would cause arterio-sclerosis. They were working out the effect of this substance. It was quite a new investigation. He had not witnessed the experiments in connexion with it. In reply to further questions, he said the submission of the animal to an excess of oxygen caused pneumonia, apart from any organism. That was an example of inflammation without bacteria. In man the usual pneumonia was caused by bacteria. Asked if the result of his investigations was to suggest that oxygen ought not to be employed in the treatment of pneumonia, he said he had debated that point with physicians like to the late Dr. Dreschfeld. It was rather difficult to answer it definitely. He thought Dr. Dreschfeld did not use it when he saw these experiments. He agreed that if oxygen produced pneumonia, the use of oxygen in pneumonia would be rather a homoeopathic remedy. Proceeding, he said he did not wish to disparage the importance of morbid anatomy as a means of research. He merely wished to indicate that the natural development of the study of disease was to commence with morbid anatomy, and that the experimental work was required to test the conclusions. Asked if he accepted the *Bacillus paralyticans* as the cause if paralysis, he said the experiments he had seen were done by a variety of toxin-producing microbes; the *Bacillus coli* was tried and Gaertner's bacillus, and, he thought, a mixture of bacilli. The result of those investigations was that one got definitely degenerative lesions in the spinal cord at the point where the nerve emerged. Asked if the evidence pointed to spinal paralysis being a bacillary disease, he said that in this particular part probably it did not; but there had been a large amount of evidence published lately to connect it with the diphtheroid bacillus. This investigation was rather to show that experiments had found out a mode of introducing the toxin into the nervous system in a form in which it had local effects. Apparently, so far as he had seen the experiments, the toxin might be of various kinds. Asked if he had been able to produce the results that he identified with those of general paralysis without the use of the *Bacillus paralyticans*, he said, Yes, they had, with ordinary bacilli such as were found in the intestines, been able to produce effects of this order. He had tried the same experiment with poisons derived from other than bacillary sources. In reply to further questions, he said the fasting experiments on dogs were performed by Rosenfeld and Lebedeff. Rosenfeld published them in the *Zeitschrift für klinische Medicin*. As far as he knew no similar investigations had been made in this country. In reply to Sir John McFadyean, he said it would be in his opinion entirely unnecessary, as a means of ensuring compliance with the Act, to legislate so as to give greater publicity to the names of those engaged in vivisection, and to give in fuller details for public information the nature of the experiments. He had no reason to suppose that painful experimentation was carried on in this country. The statements about the cruelty and pain which were inflicted were misrepresentations, so far as he knew. He thought that that misrepresentation of the facts might be an honest misrepresentation, but that it might be continued, and even increased, if the laity were provided with details even of painless experiments. Asked by Sir Mackenzie Chalmers if, when he experimented under Certificate B, he understood that not only the cutting operation itself, but any subsequent painful part of the operation, such as stimulating a nerve, or sewing up the wound, must be done under anaesthetics, he said, Yes. In reply to further questions, he said he represented the council of the university, which was the executive body. Mr. John W. Graham, who had given evidence, and described himself as Principal of Dalton Hall in the University of Manchester, did not represent any faculty of the university. Mr. Graham was not a member of the council of the university. Dalton Hall was a hall of residence for students. So far as he knew, no inquiry was made by Mr. Graham as to what went on locally in his own university. Asked whether general paralysis of the insane was not commonly supposed to be a sequel of syphilis, he said, Yes. His work had not necessarily tended to negative that in any way. Their work had been rather on the method in which toxins were absorbed so as to localize the lesions in the spinal cord. Various toxins might produce the same degenerative effects. In reply to Mr. Ram, he said he thought the treatment of fatty degeneration of the heart, or medical knowledge with regard to it, had been advanced by the starvation experiments on animals. The witness was then asked by Dr. Gaskell to tell the Commission about the case of Mr. Cecil Shaw which had been referred to by the Hon. Stephen Coleridge. Was it true that Mr. Shaw did experiment without a licence? Dr. Lorrain Smith said, No. The witness did the experiment. An eminent ophthalmologist in Belfast, now deceased, appealed to him to undertake this research. The witness was not specially acquainted with ophthalmology, therefore he associated himself with an ophthalmologist, and it was in these circumstances that the combination came about. Mr. Cecil Shaw practically did the whole research except the vivisection part of it. Asked why his name did not appear in connexion with it, he said it should have done; it would have been less ambiguous. These experiments which he had just recounted with regard to the absorption of toxins along the nerve sheaths was in the line of this investigation; it had engaged his attention more or less continually ever since. He had explained the whole circumstance and the Irish Home Office was satisfied with his explanation. He was attacked another time about doing experiments without a licence himself in a research on bacteria of the intestines of dogs, although he stated in the investigation that the intestine was removed after the animal was dead. He did not consider that the experiments on the eye caused the rabbits a good deal of pain. They did not succeed in causing iritis. It was a very minute quantity of jequirity, just the least speck of dust on the point of a camel-hair brush. No inflammation was caused except conjunctivitis. In reply to further questions, he said that at Manchester he did not demonstrate to students. There were no demonstrations in pathological experiments and experiments involving vivisection. He considered that such experiments might be useful to students. He knew how he was impressed the first time he saw a physiological experiment. One of the things that stood out in his recollection of Professor Rutherford's teaching almost more clearly than anything else was the experiment of blood pressure. He could not say what anaesthetics he used. He had no specific recollection of the point, but he was sure the animal was anaesthetized throughout. Sir William Church said they had had a witness before them lately who seemed to be under the impression that when an animal was kept under chloroform by means of having a tube introduced into the trachea, and then vapour of chloroform supplied to the animal through that tube, the tube was introduced without the use of anaesthetics—in other words, that the wound was made without the use of anaesthetics. The witness said he had never seen it done. He agreed that there was no difficulty whatever in keeping an animal under anaesthesia under those circumstances.

(To be continued.)

An International Congress on Leprosy is to be held at Bergen in August next. We understand that Sir Jonathan Hutchinson and many prominent dermatologists will take part in the proceedings, and that the etiology of the disease will occupy a large place in the discussions.

RADIUM:

ITS PHYSICAL AND CHEMICAL PROPERTIES.

RADIUM and the kindred radio-active bodies furnish an excellent example of the logic of discovery. In a sense it may be argued that the *x* rays—and thus eventually radium—were found by a happy accident, being the outcome of a series of experiments on the electric conductivity of gases at low pressures; but the *x* rays and the phenomena connected with them merely gave an indication of the experiments which led up to the discovery of radium, the most revolutionary discovery of modern science.

THE DISCOVERY OF RADIUM.

It is common knowledge that during a discharge of electricity at high tension, through an attenuated gas, material particles (cathode rays) having a mass equal to the thousandth part of the mass of an atom of hydrogen are driven at enormous velocity from the cathode, and that when these material particles are stopped in their career, they produce fluorescence and give rise to the *x* rays, believed to be either light waves of exceedingly short wave lengths or an irregular series of pulses set up in the ether. The fact that these rays produce fluorescence when they impinge on barium platinocyanide and similar substances suggested the search which eventually culminated in the discovery of radium. Becquerel investigated various fluorescent bodies to see whether they gave rise to the *x* rays, and found that in the case of the fluorescent uranium salts a penetrating radiation could be detected. Further research showed that all salts of uranium—whether previously exposed to the light or not, and whether fluorescent or not—were able to give off rays affecting a photographic plate. A search was made for similar substances and it was soon found that thorium appeared to possess a similar property. The fact that uranium, when pure, was less active than certain native minerals containing it prompted further investigations, and eventually three new substances were discovered, all of which showed radio-activity, polonium, radium, and actinium, radium being enormously the most active of the various bodies.

PHYSICAL PROPERTIES OF RADIUM.

There is no need to detail the methods of preparation of radium from pitchblende. Enormous quantities of pitchblende have to be worked in order to procure a few grams of the mixed chlorides of radium and barium, and advantage is taken of the relative insolubility of radium chloride to effect separation by fractional crystallization. To prepare a gram of the chloride 10,000 kilograms of the mineral must be treated.

When once radium chloride had been obtained pure, except for minute traces of barium, the first question presenting itself was whether radium was or was not an element. This was solved by Demarçay by spectroscopic methods. The atomic weight of radium has since been determined, though not with certainty, as about 225. For the purposes of research, the most important property of radium is the power it possesses of making gases conductors of electricity. This property renders it possible to standardize samples of radium-bearing substances, to determine the relative activity of radium under different conditions, and, in a word, to study it in a quantitative manner. Standardization is effected by noting the speed with which a given electroscope is discharged owing to the ionization of the surrounding air.

In the address delivered by Sir Frederick Treves at the London Hospital, published after revision by him at p. 317, he described the three types of radiation produced—the alpha, beta, and gamma rays—and also the remarkable gas or emanation that is given out by radium. Among other properties the self-luminosity of radium salts was described. It may be noted that the greater the purity of the salt the less the luminosity, for the bulk of the fluorescence is due to the bombardment of barium impurities by the rays emitted from the radium. In connexion with this self-luminosity the curious fact may further be noted that it decreases with the lapse of time, but that it may be recovered by recrystallizing from a solution in water. Another remarkable physical effect produced by the presence of radium is the power which the rays have of increasing the electric conductivity of liquids and solids as well as gases. The thermal effects of radium are too well known to require any description.

THE EMANATIONS.

Owing to the nature of the case Sir Frederick Treves was unable to discuss any details of the very peculiar properties connected with the so-called emanations or gases given off by radio-active bodies. It is noticeable that all attempts to get an emanation from polonium or uranium have so far resulted in failure. The radium emanation is obtained by dissolving a radium salt in water and bubbling air through the solution. Relatively large quantities are thus continuously produced for a short time, but soon the radium is completely deprived of its emanation and the radio-activity of the preparation vanishes for the time. About a month is required before the radium has fully recovered its original activity.

The properties of the emanation are even more remarkable than those of the parent body, radium. It is radio-active, but it loses its activity in an exceedingly short space of time. Within three and three-quarter days the activity has been diminished by half, and the fact has been determined that in the same time the radium from which the emanation was produced, and which temporarily lost its activity, has regained as much activity as the emanation has lost. In other words, the sum of the activities of radium and of the emanation of radium is constant. This statement remains true whatever length of time is considered.

The phenomenon has been explained by Rutherford and Soddy by their "disintegration theory." These observers believe that the atom of radium decomposes as it emits the alpha rays, and that radium emanation is radium *minus* the alpha rays or alpha particles. The emanations seem to be chemically inert. By applying Graham's law of the diffusion of gases, their molecular weight appears to be about 100, the atom of hydrogen being taken as unity. The radium emanation has a boiling point of about −150°C., and the thorium emanation of about −120°C. Sir Frederick Treves has explained how the emanation deposits a substance on the walls of the vessel in which it is contained. If the activity of the deposit is considered, it is found that it decreases in a peculiar manner in three definite stages. The first stage is short, and during this the activity, as measured by the alpha rays, falls with great rapidity. The second stage is marked by a constant discharge of activity showing no signs of decay, while in the third stage the rate of decay is very much slower than in the first. It is believed that the emanation decomposes into three radio-active bodies, known as Radium A, Radium B, and Radium C, these being transformed into one another in alphabetical order. When this change has occurred, however, and when Radium C may be imagined to have decomposed, radio-activity persists. This can be shown to be of a complex character, and it has been necessary to assume the existence of still further bodies called Radium D, E_1, E_2, and F. This conclusion is based on the way in which the production of alpha, beta, and gamma rays is found to wax and wane. For example, when one of these bodies is being examined it will be found that the alpha rays are continually increasing in amount, while there may be few, if any, beta or gamma rays. After a short period the alpha rays will be found to have disappeared and the beta and gamma to preponderate, and at a later stage the types of radiation produced may be reversed, and so forth.

ORIGIN OF RADIUM.

It was stated above that uranium gave rise to no emanation. It has been found, however, that it does give rise to a body more radio-active than itself, Uranium X. When this is separated from uranium, the activity of the uranium is found to be diminished, just as the activity of radium is lessened by the removal of its emanations. The importance of this will be seen later.

In view of the fact that radium is continually being subjected to a process of decay, it is clear that it must be continually produced. It is always found closely associated with uranium. The suggestion has been made that actinium

provides the necessary link between uranium and radium. The following experiment was therefore conducted. A solution of actinium chloride, prepared from a quantity of carnolite ore containing 20 per cent. of uranium, was sealed up in a glass bulb and tested intermittently for traces of radium emanation. Two months after the experiment was started, the amount of radium emanation recovered corresponded to 5.7×10^{-9} grains of radium. The bulb was again sealed, and after 193 days emanation corresponding to 14.2×10^{-9} grains was found. In other words, 8.5×10^{-9} grains had been produced in 193 days. In this solution about 200 grams of uranium was present. It has since then been shown by Rutherford that radium is not produced directly from actinium, but from ionium, which is usually associated with actinium. The application of this discovery to geology by Professor Jolly last year at the meeting of the British Association in Dublin was probably the most original contribution made on that occasion.

The following table illustrates the putative kinship of radium:

Substance.	Time to Fall to Half Value.	Nature of Rays.
Uranium	(?)	Alpha.
Uranium X	22 days	Beta and gamma.
Ionium	—	—
Radium	1,300 years	Alpha.
Radium emanation ...	3.75 days	Alpha.
Radium A	3 minutes	Alpha.
Radium B	26 minutes	Slow beta.
Radium C	19 minutes	Alpha, beta, and gamma.
Radium D	40 years	*No* rays.
Radium E_1	6 days	*No* rays.
Radium E_2	4.8 days	Beta rays.
Radium F (Polonium) (Radio-tellurium)	143 days	Alpha rays.

Now radium F, or polonium, is radio-active, and must certainly change into some other substance. It may be noted that with uranium the following elements usually occur: Lead, thorium, bismuth, and barium, and also the gases hydrogen, argon, and helium. Now the last of these substances is generally regarded as identical with the alpha particle emitted by radium. Ramsay has shown that radium emanation can be got free from helium, and that as it decays within a sealed tube helium makes its appearance. If, however, emanation is allowed to decay in contact with copper sulphate, argon is produced instead of helium, while in the presence of water neon makes its appearance. No mention need be made here, in view of the prominence that has been given them, of the apparent transmutation of copper under the influence of radium emanation to lithium, and possibly sodium, by Sir W. Ramsay. It should be noted, however, that Madame Curie has tried to repeat Ramsay's experiments, using platinum vessels without success.

The hypothesis has long been suggested that lead is the final product of radio-active change. It is noticed that in primary ores of the same geological age the ratio of uranium to lead is constant. In the case of thorium, barium, and bismuth no such relation holds. The most serious objection to this theory is that, while the atomic weights of uranium and lead are 240 and 207, fourteen transformations would have to occur within this very short range. Another difficulty consists in the fact that the atomic weight of radium emanation seems to be about 100.

Many problems are raised by the most elementary study of radio-activity. From a gram of a radium salt a stream of energy is continually flowing; nothing affects this constant discharge. It is immaterial whether the salt is wet or dry, whether it is heated almost to the glowing point or whether it is plunged into the extreme cold of liquid air, it can be made to enter into one form of chemical compound or another, it can be mixed with other salts, and subjected to the action of powerful electrical or magnetic forces and still the bombardment continues, containing in its minute bulk all the gorgeous radiant majesty of a shower of incandescent meteorites. The hypothesis that radium derives its energy by absorbing energy radiated to it through space breaks down on investigation, and the fact that radium evolves energy from itself is established beyond dispute. The chemical changes which the element undergoes are entirely unaltered by conditions of temperature, and are so enormously greater in amount than any of those with which the chemist is acquainted, that no chemical hypothesis can be advanced.

It is believed, therefore, that the atom of radium is being continually disintegrated, a conception harmonizing remarkably with the hypothesis of atomic structure advanced independently by Sir J. J. Thomson. The theory is a return from a different standpoint to the fundamental ideal set forth by Prout and others since his time as to the unity of all forms of matter. Prout believed that the various elements were all built up of hydrogen, and, in fact, were multiples of that element. Sir J. J. Thomson's hypothesis is that the elements are built up of minute vibrating systems of corpuscles, and these corpuscles are the small bodies known as the beta rays. They, as Sir Frederick Treves pointed out in his lecture, are negatively charged and may be regarded as having inertia of purely electrical origin. The positive alpha rays, on the other hand, have a mass comparable with that of hydrogen, and a difficulty arises from the fact that no similar positive electrified body with only electrical inertia has been demonstrated to exist.

Despite this condition, however, pointing as it does to a difference in kind between negative and positive electricity, Sir J. J. Thomson's view of the atom has much to recommend it. The atom would consist of negatively charged corpuscles rapidly moving in orbits, within a sphere of positive electricity. The corpuscles would arrange themselves in systems and there would be a certain critical value necessary for the atom's stability. From such a system, energy derived from the rotation of the corpuscles would be slowly radiated. The velocity of the corpuscles would be reduced, their stability would be suddenly upset, and during the explosive moment of rearrangement certain portions of the atom would be set free as radiations. A fact strongly in favour of the accuracy of this view is that it was designed to explain the general behaviour of atoms. It is at the least a highly remarkable coincidence that it should be found to fit in closely with the new knowledge derived from the study of so remarkable a substance as radium.

Bibliography.

The bibliography of radium and radio-active substances is already enormous; probably the best and most recent general account is to be found in the volume entitled *The Radio-active Substances: their Properties and Behaviour*, by Mr. Walter Makower, Assistant Lecturer in Physics in the University of Manchester, reviewed in the Journal of October 24th, 1908, p. 1277.[1] The volume on *Radio-activity*, published in 1904 by Professor Soddy,[2] who has himself contributed much to the investigation of the subject may also be consulted; and his paper on "A method of applying the rays from radium and thorium to the treatment of consumption," published in the British Medical Journal of July 25th, 1903, p. 197, may still be read with interest. Those who wish to follow the development of the subject may consult the files of *Nature* for the last few years. Our Paris correspondent gave an interesting account of the therapeutic use of radium at the St. Louis Hospital in cancer of the skin and mucous membrane in the Journal of January 23rd, p. 242.

[1] London: Kegan, Paul, Trench, Trübner, and Co., 1908, 5s.
[2] London: *Electrician* Publishing Co., 1904.

The report presented to the eighth annual meeting of the Peckham Nursing Association stated that the organization, which exists to give nursing attendance free to the poor in their own homes, and to attend cases of sickness and operation among the middle classes for a moderate fee, had received a grant from the Metropolitan Hospital Sunday Fund. Since its foundation over 26,000 visits had been paid to 1,191 poor patients.

CREMATION.

PROGRESS OF CREMATION.

FOR some years past we have published figures, obtained from official sources, as to the number of cremations carried out in this country and the establishment of new crematories. On each of these occasions we have taken the opportunity of urging upon the medical profession the advantages of this mode of disposing of the bodies of the dead, alike in regard to the respect due to those who pay the inevitable debt of mortality and to the welfare of the living. We have shown that the objection on religious grounds which used to influence the minds of many has lost much of its force. It was met long ago by Lord Shaftesbury's famous question, If the burning of a body interferes with the Resurrection, what becomes of the blessed martyrs? Religious feeling can be satisfied by services when the ashes are placed in the urn just as well as when the body is laid in the grave. The Roman Catholic Church still forbids cremation, but there is reason to believe that this prohibition has a disciplinary and ritual or political rather than a strictly theological basis. In Italy cremation was, when first introduced, regarded, if not intended, as a sign of revolt against clericalism. As the Roman Catholic Church spreads its branches over the world this prohibition, which, if we are rightly informed, in its origin had only a local significance, has been extended over a corresponding area, carrying with it an official disapproval of cremation which has been misinterpreted into a formal condemnation of the practice on theological grounds. It is not surprising, therefore, that in Catholic countries cremation is almost as extraordinary an event as an *auto da fé* would be in these days. It is strange, however, that in what is at present the most anticlerical of countries—France—it makes little progress. In the Jewish community, although cremation is not much practised, there is no official prohibition. In Germany it has lately made rapid headway, notwithstanding opposition on the part of religious bodies. There are crematories at Bremen, Chemnitz, Coburg, Eisenach, Gotha, Hamburg, Heidelberg, Heilbronn, Jena, Karlsruhe, Mayence, Mannheim, Offenbach-on-the-Main, Pössneck, Stuttgart, and Ulm. The number of cremations carried out in 1908 was, according to *Die Flamme*, 4,050, as against 2,977 in 1907. Quite recently the remains of Prince Edward Saxe-Weimar Eisenach were burnt instead of being deposited in the family mausoleum. This is said to be the first time that the body of a prince of a reigning house in Germany has been cremated. In New South Wales there is a cremation society which held the first general meeting in November, 1908, under the presidency of Dr. Creed, M.L.C., and in Auckland, N.Z., under the presidency of Dr. J. S. Purdy.

In this country, as has been stated in previous articles, many of the clergy are in active sympathy with the movement for the substitution of cremation for burial, and there are not a few signs that it is becoming more common. It is still, however, almost wholly confined to persons belonging, in an intellectual sense, to the higher classes. This is probably in large measure due to the inertness which makes any departure from long-established custom repugnant to the average, and still more to the ignorant, man. The advocates of cremation should not therefore be discouraged by its slow progress, but should welcome every sign, however trivial, of advance.

It is satisfactory to record that during 1908 there was a decided increase in the number of cremations throughout the country. In this increase the London crematories—Woking, Golder's Green, and Ilford—figure most prominently, the total number being 86, or 20 per cent., more than in the previous year. In the provinces the increase was only 4, or 1.4 per cent. The increase in the frequency of cremation in London is attributable partly to the diffusion of the knowledge of its advantages by the press, partly to the active propaganda carried on by the Cremation Society of England. The table at the foot of this page shows at a glance the progress of cremation in Great Britain during the last twenty-three years.

The following table shows the relative numbers of cremations in London and in the provinces:

London Crematories (Woking, Golder's Green, Ilford).			Provincial Crematories (Manchester, Glasgow, Liverpool, Hull, Darlington, Leicester, Birmingham, Leeds, Bradford, Sheffield).		
1907.	1908.	Increase.	1907.	1908.	Increase.
416	502	86 (20 per cent.)	289	293	4 (1.4 per cent.)

THE SENTIMENTAL ASPECT.

In such a matter as the disposal of the remains of the dead the sentimental aspect cannot be disregarded. Probably what makes the idea of cremation repulsive to many people is the sudden and complete destruction of the tenement in which dwelt the soul of one we knew and perhaps loved. But to any one whose imagination can pierce below the cerements and the coffin in which a body is laid to rest, the prevention of corruption by the quick action of fire should surely be more comforting than the thought of any one we knew being doomed in the words of Claudio:

> To lie in cold obstruction and to rot.

We have no wish to dwell on the horrors of the charnel house, but we cannot shut our eyes to the fact that burial means decay with its accompanying loathsomeness. To this favour must we all come if we are laid in the earth or, what is far worse, in vaults. The gorge rises at the notion of the process of decomposition. Cremation, on the other hand, has no such disgusting associations.

Table of Cremations Carried out in Great Britain since the Opening of Woking Crematorium in 1885.

	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	Total.
Woking ...	3	10	13	28	46	54	99	104	101	125	150	137	173	240	240	301	273	275	143	138	95	140	108	**119**	**3.115**
Manchester ...	...	...	...	...	...	...	...	3	30	47	58	52	51	62	88	83	96	81	92	98	97	90	96	**116**	**1.240**
Glasgow ...	...	...	...	...	...	...	...	...	...	...	1	10	16	12	16	20	18	20	24	19	35	44	30	**28**	**293**
Liverpool ...	...	...	...	...	...	...	...	...	...	...	...	2	10	27	23	40	40	54	35	40	35	46	34	**32**	**418**
Hull	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17	13	18	20	15	17	29	**37**	**166**
Darlington ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	1	7	4	13	8	**6**	**42**
Golder's Green	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	158	220	252	298	290	**364**	**1.587**
Leicester ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	8	16	12	12	**14**	**68**
Birmingham	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	19	22	25	33	**18**	**118**
Leeds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16	15	16	**24**	**71**
Ilford	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	23	18	**19**	**69**
Bradford ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	14	13	**6**	**34**
Sheffield ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	6	18	**12**	**43**
Total	3	10	13	28	46	54	99	107	131	172	209	201	250	341	367	444	445	451	477	569	604	743	705	**795**	**7.264**

By its means the ashes of the dead may repose inoffensively for an indefinite period amid beautiful surroundings. It justifies the words of Shelley speaking of Keats's grave: "It almost makes one in love with death to think that one would be buried in so sweet a place." The consequences of burial, however, are the reverse of sweet, whereas cremation is an act of kindness to the living as well as to the dead, and enables us to keep their memory undisturbed by ideas of decay.

The Economic Aspect.

It is tolerably certain that cremation will sooner or later be forced upon us as a compulsory measure owing to the want of space for burial. Already municipalities are confronted with the ever-increasing difficulty of enlarging their cemeteries or finding room for new ones. The cost of this will necessarily increase as ground available for the purpose becomes less easy to find, and therefore more expensive. The dangers to health from overcrowded graveyards need not be dwelt upon, as they are recognized by all. Cremation offers the readiest and the best solution. It is not only cleanly and wholesome, but cheap, a circumstance which has to be taken into account by local authorities as well as by private persons.

Crime and Cremation.

The only serious objection to cremation from the point of view of the public safety is the possibility of its destroying evidence of crime. If the provisions of the Cremation Act are complied with, the chances of the body of a person who has died in circumstances warranting any suspicion of foul play being disposed of by cremation are very remote. Indeed, hiding of the evidences of crime is made far more easy by burial as ordinarily carried out than by cremation. For cremation two medical certificates signed by two registered medical practitioners are required; this alone suffices to show how much more stringent the regulations of the Home Office under the Cremation Act are than those for burial. In proof of this it may be stated that according to the latest returns more than 8,000 bodies were buried in 1907 in England and Wales without any medical certificate at all. In an article published in the Journal of February 8th, 1908, p. 339, it was stated that since the Home Office regulations under the Cremation Act came into force—that is to say, from May 1st, 1903, to December 31st, 1907—1,739 cases were submitted for cremation to the medical referee. Of these, 7 were referred to the coroner, who held an inquest in 3, and thought such an inquiry unnecessary in 4. In 31 cases certificates were referred back to the certifying doctors for further information or owing to some irregularity in filling up the form. In 20 a *post-mortem* examination was ordered by the medical referee. In 4 cases the medical referee refused to authorize cremation, and in 6, in which the deceased persons were from abroad, it was found impossible to comply with the statutory regulations. Thus, of the total number of cases submitted to the medical referee, in 68, or nearly 4 per cent., further information was required or the necessary authorization was refused.

During 1908, 489 cases were submitted to the medical referee of the Woking and Golder's Green Crematories. Thirty-eight of these were referred back, in 4 cases the application was refused or withdrawn, and in 2 from abroad cremation was refused. The reasons of the refusal are to be found in the following rules and orders under the Cremation Act with regard to persons dying abroad or at sea:

> The duties of the medical referee shall be as follows:
> He shall not (except where an inquest has been held and a certificate given by a coroner in Form E) allow any cremation to take place unless he is satisfied that the death of the deceased has been duly registered by the production of a "certificate of registry of death" on one of the forms provided by the Registrar-General for production in case of burial.

In these cases the registrar never issues a certificate of registry of death, and the coroner very rarely holds an inquest. Therefore, since the medical referee cannot obtain either of these he cannot sanction cremation. For the same reason, a "provisional certificate of registration of death" is of no use for the purpose. The medical referee can only allow cremation on the production of the certificate of registry of death itself. Of the 38 cases referred back by the medical referee during 1908, 4 were reported to the coroner, who held an inquest in each case. In 27 cases certificates were returned on account of some irregularity in filling up the forms or because further information relative to the cause of death was required. Of these 23 were ultimately passed, and 4 were refused or withdrawn. In 7 cases *post-mortem* examinations were made. These figures, besides showing the care with which permission to dispose of bodies by cremation are issued, suggest that there is considerable laxity as to orders for burial. If the total number of deaths occurring yearly in London is put roughly at 70,000 (15 per 1,000 on 4,700,000 people) and if the figures yielded by the investigation of the number of deaths which come before the medical referee are of any value, it would appear that in London alone in 560 cases of death where burial is now carried out on a registrar's certificate an inquest should have been held, and in 980 a *post-mortem* examination should have been held to establish satisfactorily the cause of death.

Another point which seems to us to make strongly in favour of cremation is the fact that it would place in the hands of the Registrar-General much more trustworthy information than he obtains under the existing system. From the figures we have quoted it is obvious that many of the statistics issued are, in a scientific sense, valueless. Figures collected with the precautions against error required for cremation would be far more likely to supply a more solid foundation for conclusions as to the causes of death and as to the prevalence of certain diseases. In illustration of this it may be mentioned that the Medical Referee for the London Cremation Company has not yet come across a case in which the diagnosis on the certificates was completely substantiated by a *post-mortem* examination. This does not, of course, imply that medical diagnosis is generally at fault; it must be remembered that the cases with which he has to deal are, from the very fact that extra precautions are considered necessary, obscure in their nature, even when they are not open to suspicion in other respects.

Criminal Prosecutions under Cremation Act.

During 1908 there was one criminal prosecution under the Cremation Act by the Home Office. The case was tried at Edgware Petty Sessions on May 6th, and a report of it was published in the Journal of May 23rd, 1908, p. 1263. An undertaker was charged (1) with unlawfully and knowingly burning the body of a stillborn child; (2) with contravening the regulations made by the Secretary of State by causing and procuring the cremation of a stillborn child otherwise than on the written authority of the medical referee acting on behalf of the London Cremation Company. A report of another case, which was tried since the beginning of the present year, may be found at page 315 of the British Medical Journal of January 30th.

How to Ensure Cremation.

There can be no doubt that cremations would be more numerous but for the fact that the wishes of dying persons in regard to this matter are not always fulfilled. The reason is generally that no definite instructions as to the disposal of his body are left by the deceased. It may be well, therefore, that it should be generally known how a person can ensure that his body shall be cremated if he wishes. For this purpose the person desiring it should communicate his wishes to his executors and friends. It is not sufficient merely to insert a direction in a will, because the will is rarely looked at until after the funeral. Moreover, any such direction, having no effect in law, would not bind unwilling executors. It is advisable, therefore, to appoint executors who may be relied on to respect the testator's wishes in respect of cremation. As a further precaution, any gift to them might be made conditional on their doing so. A more certain way is to become a member of the Cremation Society of England (324, Regent Street, W.). Membership, in addition, offers the following advantages:

> A Life Member is entitled to be cremated *at any Crematorium in Great Britain* without fee.
> The wish of a person to be cremated after death is more likely to be fulfilled if he is a Life Member. For life membership prepays the cremation fee, and thereby relieves the survivors of a portion of the funeral expenses.
> The Certificate of Life Membership, given by the Society, clearly indicates the desire for cremation, and relieves executors and others of the responsibility of deciding. The wishes of many persons are often forgotten, or not acted upon, if no

definite instructions are left. A member, beside being kept in touch with the progress of the movement, by means of publications, etc., has the right to vote at all general meetings of the Society, and therefore to influence its policy.

The following are the rules governing life membership:

Rule 5.

The members of the Society shall be persons of either sex who have been approved by the Council, and who

(*a*) Pay to the Society a subscription of one guinea per annum.

(*b*) Qualify for life membership under Rule 6.

Rule 6.

Any person who shall make application to the Society in the form provided for that purpose and pay the sum of five guineas shall thereby qualify as a life member of the Society, and shall as such life member be entitled—subject to the legal forms being complied with—to be cremated at death without further fee at any crematorium in Great Britain that is in working order.

The payment of six annual subscriptions of one guinea shall qualify a person for life membership.

No financial liability beyond the payment of the subscription is attached to membership.

BRITISH MEDICAL BENEVOLENT FUND.

At the January meeting of the Committee twenty cases were considered, and grants amounting to £180 made to nineteen of the applicants. Appended is an abstract of the cases relieved:

1. Widow, aged 70, of M.R.C.S. No income; slight help from children. Relieved sixteen times, £173. Voted £10.
2. Daughter, aged 33, of late M.D.Glasg. Used to support herself by nursing, but the last three or four years has had very bad health, and is now quite incapacitated. No income; slight help from a friend and the Distressed Gentlefolks' Aid Association. Relieved four times, £41. Voted £10.
3. Daughter, aged 64, of late M.R.C.S. Had maintained herself as a governess from the age of 16 until a few years ago. Invested her savings in a company which has just gone into liquidation. Voted £12.
4. M.R.C.S., aged 65. Used to have a good practice, but has lost several patients through death and removal. Receipts last year not very much more than his rent, and is not in good health. Voted £12.
5. L.R.C.S.Dub., aged 64. Was a ship's surgeon for many years, but was obliged to resign, having contracted a drug habit, and now finds it impossible to get work, although there is every reason to believe that for five years he has taken neither narcotic nor stimulant. Was given an interim grant of £2 at Christmas, and now voted £5, with leave to apply again in six months, a medical friend undertaking to receive the money and satisfy himself as to the use made of it.
6. Widow, aged 85, of M.R.C.S., L.S.A. Only income £25 a year from the United Kingdom Beneficent Association, and has been bedridden for six years. A friend who formerly helped died recently. Voted £5.
7. L.R.C.P.Edin., aged 78. Used to have an excellent practice, but receipts have greatly fallen off owing to changes in the neighbourhood, and applicant has unavoidably exhausted his savings. Voted £12.
8. Daughter, aged 49, of late L.R.C.P.Edin. No means, and is not in a fit state for undertaking remunerative work of any sort. Voted £10.
9. Medical student, who hopes to get qualified in eighteen months' time, but whose father recently died, leaving applicant and four sisters quite unprovided for. A grant has been made him at his school and help is promised by local friends, but meanwhile money is urgently needed for unavoidable expenses. Voted £20, to be distributed to the family at the discretion of an honorary local secretary.
10. Wife, aged 39, of M.D.Edin., who is confined in an asylum. Income £13 a year. Has taken lodgers, but is at present unable to do so on account of a recent surgical operation. Two children, aged 13 and 12. Relieved four times, £28. Voted £10.
11. Widow, aged 59, of M.R.C.S. No income. Slight help from children. Has permanently injured her right hand. Relieved five times, £58. Voted £12.
12. Daughter, aged 71, of late M.R.C.S., L.S.A. Income £20 a year, and earns a few shillings occasionally by needlework. Relieved nine times, £95. Voted £5.
13. Widow, aged 60, of L.R.C.P., L.R.C.S. No income; health failing; endeavours to earn a little by needlework, but finds it difficult to obtain. Relieved ten times, £105. Voted £12.
14. Widow, aged 38, of M.R.C.S., L.S.A. Quite unprovided for at husband's death. No income; slight help from friends; has maintained herself as a housekeeper until about a year ago, when she developed phthisis. No children. Relieved once, £5. Voted £5.
15. Widow, aged 51, of M.R.C.S., L.S.A. Quite unprovided for at husband's death, and with the assistance of this fund and relations has brought up her four children, whom it is hoped will soon be able to support her. Relieved thirteen times, £150. Voted £12.
16. Daughter, aged 68, of L.R.C.P., L.R.C.S.Edin. After father's death at the age of 92 applicant became a teacher, property intended for her support having had to be realized. Has now a teacher's pension of £15 a year and a little help from the Indigent Gentlewomen's Fund. Relieved twice, £28. Voted £5.
17. Widow, aged 65, of L.F.P.S.Glas. Nursed her husband for several years before his death, and now endeavours to support herself by letting lodgings. No children. Relieved once, £5. Voted £5.
18. Daughter, aged 57, of late M.R.C.S., L.S.A. Maintained herself for several years as a governess, but now dependent on small earnings from needlework and music pupils. Relieved once, £12. Voted £12.
19. Widow, aged 54, of L.R.C.P., L.R.C.S.Ire. No income; children do not help. Relieved four times, £41. Voted £6.

Contributions may be sent to the Honorary Treasurer, Dr. Samuel West, 15, Wimpole Street, W.

Nova et Vetera.

A MEDICAL ROLL OF HONOUR.

PHYSICIANS AND SURGEONS WHO REMAINED IN LONDON DURING THE GREAT PLAGUE.

WHEN the Great Plague of 1665 occurred in London, there was a general stampede of all who could leave the city. The exodus included those to whom the distressed inhabitants naturally turned for help, namely, the clergy and the doctors; and the panic-stricken and plague-stricken inhabitants were left largely in the hands of irregular practitioners in both professions. The medical refugees included men of high reputation and great wealth; among them one, at least, whose name is a household word in the annals of medicine. All the officers of the College of Physicians, led by their president, fled; to find, on their return, that their college had been broken into and the college coffers emptied.

How many medical men remained at their posts is not accurately known. There were not many. Apparently not more than twenty-five. Not a large number to minister to the medical needs of a population estimated at 240,000 and in a time of pestilence. No list has been preserved of this small band of heroes. A study of contemporary literature, however, and an examination of valuable manuscripts in the Guildhall Library, most kindly transcribed by Mr. Edward M. Borrajo, the City Librarian, has enabled the compilation of the following list, which, however, cannot pretend to be more than an approach to completeness:

I. PHYSICIANS.

In the compilation of the following biographical notes, Monk's valuable "Roll of the Royal College of Physicians" has been largely drawn upon:

Allen, Thomas, is mentioned by Pepys as being in London during April, 1666, when the Plague was still raging severely. Dr. Allen was educated at the University of Cambridge (Trinity and Caius Colleges) where he took the degrees of M.B., 1654, and M.D., 1659. He became a member of the Royal College of Physicians in 1659, a Fellow in 1671, and Censor in 1674-79, and 1682. He was a Fellow of the Royal Society and Physician to Bethlehem Hospital. He died of "dropsy" in 1684.

Baber, Sir John, resided in King Street, Covent Garden. He was the son of Mr. John Baber, Recorder of Wells, Somerset, and was born April 18th, 1625. He studied first at Winchester and then at Christ Church, Oxford. After graduating M.B. (1646) at Oxford, he travelled abroad and took his M.D. (1648) at the University of Angers. On returning to London he joined the Royal College of Physicians, becoming a Fellow in 1657 and Censor in 1660. He was appointed Physician-in-Ordinary to Charles II, and knighted by that monarch, March 19th, 1660. He died in 1703. Sir John Baber's presence in London during the plague year is established by entries in *Pepys's Diary*.

Barwick (or *Berwick*), *Peter*, resided in St. Paul's Churchyard, until his house was destroyed by the fire of 1666, when he removed to Westminster. He was the son of Mr. George Barwick, of Withurslack, Westmorland, and was born there in 1619. He was educated at Sedbergh Grammar School, and then at the University of Cambridge (St. John's College), where he took the degrees of B.A. (1642), M.A. (1647), and M.D. (1655). He

joined the Royal College of Physicians in 1655, became a Fellow two years later, and was Censor in 1674–84 and 1687. This good man seems to have been noted for his loyalty, his piety, and his charity. He was with Charles I at the battle of Worcester, remained steadfast to the Royal cause during the Commonwealth, and at the restoration was appointed a Physician-in-Ordinary to Charles II. He is mentioned by Dr. Hodges in *Loimologia* as one of those who remained in London during the plague year. During the whole of that year he never missed attending daily service at St. Paul's Cathedral. His practice was to rise at 6, walk over to the Cathedral for prayers, and then return to his house to see gratuitously all sick poor who came to seek his aid. He seems to have stimulated the Cathedral clergy to their duty, for one of the canons writing to the Dean, states that Dr. Barwick had been inquiring as to the celebration of the Holy Communion, which appears to have fallen into abeyance, possibly from the fear of spreading contagion. In old age he became completely blind and suffered severely from stone. He died in his 84th year and was buried in the crypt of St. Faith beneath St. Paul's Cathedral. He married the widow of an eminent merchant, and left a daughter who became the wife of Sir Ralph Dutton, Bart., of Sherborne.

Brooks, Humphrey, lived in Leadenhall Street. He was a Londoner by birth, and was educated at the Merchant Taylors' School. He subsequently went to Oxford (St. John's College), and took there the degrees of B.A. (1640), M.B. (1646), and M.D. (1649). He was admitted a member of the Royal College of Physicians in 1640, and chosen a Fellow in 1674. He was Censor in 1675–80–81–84 and 1692, and "Consiliarius" in 1693. He died "very rich" at the age of 76, and was buried in the Church of St. Andrew Undershaft. He was the author of a work entitled, *A Conservatory of Health, Comprised in a Plain and Practical Discourse upon the Six Particulars Necessary for Man's Life* (London, 1650, 12mo). His presence in London during the plague is vouched for by his contemporary, Dr. Hodges.

Burnett, Alexander, of Fenchurch Street, was M.D.Camb. 1648, and F.R.C.P.Lond. 1648. Dr. Burnett, while engaged (in company with Dr. Glover, Dr. O'Dowd and two other physicians) in making an autopsy upon a person who had died of the plague became himself infected and died August 25th, 1665. All present at this fatal *post-mortem* examination caught the virus and died, some the same day, the rest the day following. Dr. Burnett was ordinary medical attendant to Pepys, the celebrated diarist. Pepys says the plague was first brought into the city itself (it had begun in the western suburbs) by the doctor's own manservant. Under date August 10th, 1665, he writes: "To my great trouble hear the plague has come into the city, but where should it begin but in my good friend and neighbour's Dr. Burnett in Fanchurch Street, which in both points troubles me greatly." Dr. Burnett seems to have taken the necessary precautions for protecting his neighbours, for under date August 11th Pepys writes: "I saw poor Burnett's door shut, but he hath, I hear, gained great goodwill among his neighbours, for he discovered it himself, and caused himself to be shut up of his own accord, which was very handsome." Referring to Dr. Burnett's death, Pepys has the following entry: "Aug. 25.—This day I am told that Dr. Burnett, my physician, is this morning dead of the plague, which is strange, his man dying so long ago, and his house this month opened again. Now himself gone! Poor unfortunate man!" Pepys was evidently not aware that Burnett had contracted the disease at a *post-mortem* examination and not from his servant.

Conyers, William, was born in 1622. He received his early education at the Merchant Taylors' School, and then proceeded to Oxford (St. John's College), where he graduated M.D. in 1653. He was admitted a member of the Royal College of Physicians in 1656, and settled to practice in London. "He was," says Dr. Monk, "one of the few physicians who remained in London during the Great Plague, devoted himself to the duties of his position and the succour of the sufferers from that disease, to which he himself fell a victim."

Coysh, Elisha.—It is doubtful whether this physician should receive a place in this list. He had a house in the City and another at Highgate. When the plague broke out he left the former and retired to the latter, where he received such patients as could afford to reach him there. Dr. Coysh was M.D.Oxon. (1657), and F.R.C.P.Lond. (1673). He died in 1685.

Glisson, Francis, resided in New Street, St. Bride's, Fleet Street. He was the son of Mr. William Glisson of Rampisham, Dorset, where he was born in 1597. He entered the University of Cambridge (Caius College) in 1617, and graduated B.A. in 1620, M.A. in 1624, and M.D. in 1634. He became a member of the College of Physicians in 1634 and was elected a Fellow in 1635. He was Gulstonian Lecturer in 1655, Censor in 1656, and President in 1667–8–9. In 1636 he was appointed Regius Professor of Physic in the University of Cambridge. In 1648 he was residing in Colchester, and during the siege of that town was one of those selected to make terms with Lord Fairfax. He returned to Cambridge, but his salary as Regius Professor falling much into arrear (he received no stipend for about five years), he came to London and obtained an Order in Council, dated March 7th, 1654, for payment of the sum due to him. He did not return to Cambridge, but remained in London and joined a small body of scientific men which became the nucleus of the Royal Society. He published at least two important works, one in 1650, on Ricketts, the first description of that disease issued in this country; the other, in 1654, on the Liver, in which "Glisson's capsule" is first described. He died October 14th, 1677, and was buried in St. Bride's Church, Fleet Street. His services during the Plague are gratefully referred to by Dr. Hodges in his work *Loimologia*.

Glover, John, was born in America, and studied at the University of Harvard, where he graduated in arts. He then came to this country, and graduated M.D. (1654) at the University of Aberdeen. He settled in London, and became an Honorary Fellow of the Royal College of Physicians in 1664. He was one of those who met his death (August 25th, 1665) at the *post-mortem* examination in which Dr. Burnett and others took part.

Hodges, Nathaniel, resided in Watling Street. This remarkable man was the son of the Vicar of Kensington, and was born at the old Kensington Vicarage, September 13th, 1629. He was educated first at Westminster School. He entered Trinity College, Cambridge, in 1646, but in 1648 he was transferred by the Parliamentary Visitors to Christ Church, Oxford, where he completed his university career, and where he graduated B.A. in 1651, M.A. in 1654, and M.D. in 1659. Settling in London, he was admitted a "Candidate" of the Royal College of Physicians in 1659 and a Fellow in 1672. He was Censor in 1682, and Harveian Orator in 1683. During his Censorship he presented to the College a fire-engine. During the plague, his daily routine, taken from his autobiography, is thus described in the *National Dictionary of Biography*:

> He rose early, and took an antipestilential lectuary as large as a nutmeg. After transacting household affairs, he entered his consulting room. Crowds of patients were always waiting, and for three hours he would examine them and prescribed, finding some who were already ill and others who were only afflicted by fear. When he had seen all he breakfasted, and visited patients at their homes. On entering a house he had a disinfectant burnt on a hot coal, and, if hot or out of breath, rested till at his ease, then put a lozenge into his mouth, and proceeded to examine the patient. After spending some hours in this way he returned home, and drank a glass of sack, dining soon after off roast meat and pickles or other relish, condiments of all sorts being cheap and abundant in the city during the epidemic. He drank more wine at dinner. Afterwards he saw more patients at his own house, and paid more visits, returning home between eight and nine o'clock. He spent the evening at home, never smoking tobacco, of which he was a professed enemy, but drinking old sack till he felt thoroughly cheerful. After this he generally slept well. Twice during the epidemic he felt as if the plague had infected him, but after increased draughts of sack he felt well in a few hours, and escaped without serious sickness.

Dr. Hodges's valuable services to his fellow-citizens do not seem to have met with the recognition they deserved. He was constantly harassed by want of money, and was frequently in debt. From the Corporation he received two gifts of £100 each (Guildhall Library MS. 270). Nevertheless, his poverty increased, and it seems incredible that this faithful public servant was allowed to end his days in a debtor's gaol. Yet such was the case. Dr. Hodges died in the Fleet Prison on January 10th, 1688. He was buried in St. Stephen's, Wallbrook, where a handsome monument has been erected to his memory. Dr. Hodges wrote several works on the plague, the most important of which is

Loimologia, or an Historical Account of the Plague in London in 1665, published in Latin by the author in 1672, and translated into English by Dr. John Quincey in 1720. Readers of Harrison Ainsworth's novels will recollect that it was Dr. Hodges who attended the grocer's daughter in *Old St. Paul's*.

O'Dowd, Dr., was one of those who, with Drs. Burnett, Glover, and others, met his death in making a *post-mortem* examination on a person who had died of the plague on August 25th, 1665. He received his M.D. degree from the Archbishop of Canterbury. Further particulars of him have not been obtained.

Paget, Nathan, was the son of the Rev. Thomas Paget, Rector of Stockport, but born (1615) in Manchester. He went first to the University of Edinburgh, where he graduated M.A., then studied medicine at Leyden, where he graduated M.D. in 1639; returning to this country, he settled in practice in London. He became an Extra-Licentiate of the Royal College of Physicians in 1640, a "Candidate" in 1643, a Fellow in 1646, Censor in 1655–7–9–67–8, and Harveian Orator in 1664. He died in 1677. He is mentioned by his contemporary, Hodges, as one of the few physicians in London during the plague. He was an intimate friend of Milton, and married a cousin of the poet's third wife, Elizabeth Minshull.

Peck, Samuel.—Particulars of this physician are wanting. He is not mentioned in Munk's "Roll of the College of Physicians," nor in the lists of graduates of any British university. He probably graduated abroad. He is mentioned, however, more than once in the City archives as "Dr. Samuell Pecke, Dr. in Phisicke," and the following entry shows that he resided in London, and did meritorious work during the plague year: "Bolton, Mayor, 26 February, 1666.—Upon the humble desire of Doctor Peck, who did especial service in visiting and prescribing physic to the poor infected in the late visitation of the plague within this city and liberties, it is ordered by this Court that Mr. Chamberlain shall pay unto him the sum of fifty pounds in recompense of the said service." (From MS. 295 in the Guildhall Library.) Peck had further sums from the Corporation, amounting in all to £100.

Wharton, Thomas, resided in Aldersgate Street. He was descended from an ancient North of England family, and was the only son of Mr. John Wharton of Winston, co. Durham, where he was born in 1614. He studied at both the Universities of Oxford (Trinity) and Cambridge (Pembroke). He did not, however, at the time receive a degree from either, but subsequently—namely, in 1647—by virtue of letters patent issued by the Parliamentary General, Sir Thomas Fairfax, he received the degree of M.D. from the University of Oxford. Meanwhile he had been up in London studying physic under Dr. Bathurst, Physician to Oliver Cromwell. Having obtained his degree, he was admitted a Member of the Royal College of Physicians in 1648, and a Fellow in 1650, and held the post of Censor for the years 1658–61–6–7–8–73. When the plague broke out he set himself seriously to determine whether he should remain in London or flee. He decided to remain, being induced to that course, it is said, out of consideration for the large number of poor people who attended his clinic at St. Thomas's Hospital, of which he was then Physician. To St. Thomas's Hospital, also, the Government sent all the Foot Guards as soon as they were seized with the plague. For his services to the troops Wharton was promised the first vacant post as Physician-in-ordinary to the King; but when the vacancy arose he was put off with an augmentation in his coat of arms, for which he had to pay Sir William Dugdale, the Herald, £10.[1] Dr. Wharton died in 1673, and was buried in the Church of St. Michael Bassishaw, where a marble tablet bears an eloquent testimonial to his worth and work. Dr. Wharton was the author of *Adenographia* (in which "Wharton's duct" is first described), published in London in 1646, and again in Amsterdam in 1659.

Witherley, Sir Thomas, was a member of the University of Cambridge, and received his M.D. degree there in 1655. He became a Fellow of the College of Physicians in 1677, Censor in 1683, and President in 1684–5–6–7. He was Physician in Ordinary to King Charles II. He died March 23rd, 1693. For his services during the plague he received two sums of £100 each from the City Corporation (Guildhall Library, MS. 270).

[1] BRITISH MEDICAL JOURNAL, November 2nd, 1907.

II.—SURGEONS.

Most of the books of the Barber-Surgeons Company were destroyed in the Great Fire of 1666. The courteous Clerk of the Company, Mr. F. C. Lingard, however, has kindly furnished what particulars he could collect, and these, with certain details from the Guildhall MSS., has enabled the following brief notes to be prepared of Surgeons known to have been in London during the plague:

Fife, John, cannot be traced in the books of the Barber-Surgeons Company, but he is stated to have received from the City Corporation the sum of £40 for his attention to the sick poor (February 22nd, 1666).

Gray, Thomas, having been apprenticed first to Mr. John Hancock and then to Mr. William Hunt, was admitted "Chirurgeon" October 12th, 1652. For his services to the Plague patients he received from the City the sum of £30. He seems to have fallen a victim to his duties, for the Corporation granted to his widow a sum of £70.

Hannan, Edward, having been apprenticed to Mathew Alsopp, was admitted a "Chirurgeon" December 2nd, 1652. For his services during the Plague the Corporation voted him the sum of £30, and he dying, apparently from the distemper, his widow received in 1666 also a sum of £30.

Higgs, Edward, having been apprenticed to Mr. Doxology (*sic*) Saunders, was admitted a "Chirurgeon" April 14th, 1629. For his services in "dressing the poore visited of the plague," the City Corporation voted him at various times sums amounting in all to £90.

S. D. CLIPPINGDALE, M.D., F.R.C.S.

SOUTHWOLD LIBEL CASE.

UPON the suggestion of local members of the profession, who desire to give practical expression to their sympathy with Drs. Mullock and Tripp, of Southwold, a fund has been opened to assist them in defraying the heavy expenses which they have incurred as the result of the recent action which they were called upon to defend. Cheques to be made payable to Dr. H. P. Helsham, Beccles, or Dr. W. Tyson, Lowestoft, and crossed "Barclay and Co." The following amounts have been already promised:

	£	s.	d.
Dr. C. J. Acton, Wangford	10	10	0
Dr. Bruce Goff, Gloucester Place, W. ...	5	5	0
Dr. H. P. Helsham, Beccles	5	5	0
Dr. H. M. Evans, Lowestoft	5	5	0
Dr. W. Tyson, Lowestoft	5	5	0
Dr. W. A. Shann...	3	3	0
Dr. W. Berry, Lowestoft	3	3	0
Dr. W. L. Bell, Lowestoft	3	3	0
Dr. Alex. Macleod, Notting Hill	2	2	0
Dr. A. G. Bateman, London	2	2	0
Dr. H. Blake, Yarmouth	1	1	0
Dr. S. Barradell-Smith, Lowestoft... ...	1	1	0

A Correction.

We regret that the report of the above case which appeared in our last issue (p. 314) was incorrect in the following particular. We set out the alleged libel as it was printed in the statement of claim; but as a matter of fact the libel actually relied on by the plaintiff was contained in the following letter addressed by Dr. Mullock to Dr. Wilson Tyson:

"Wymering House, Southwold,
"7th May, 1908.

"Dear Sir,—I shall be obliged for your opinion on a point of medical ethics.

"In January, 1907, there were three practitioners in this town—two Drs. Herbert and Tripp, in partnership, and I. Dr. Herbert left the town, and Dr. Tripp took on the practice by himself, buying Dr. Herbert's share. About March Dr. D. T. MacLeod appeared, took the house which Dr. Herbert had lived in, and put his plate up. He called on Dr. Tripp and me after some delay, and told us he had come here for his health, and really didn't want many patients, but that if he was called on to attend any of our present patients he would at once let us know. He is now attending some of our patients, but in only one instance in my practice has he informed me of the fact. Dr. Tripp has never heard from him on the subject. Many unpleasant things have happened almost from the time of Dr. MacLeod's advent: such as attempting to get the use of a bed for one of his patients at the hospital, not asking our permission (Dr. Tripp and I comprise the medical staff). We interviewed him on the subject, when he denied that he was in any way to blame. His wife goes to our patients and tells them of her husband's successes, and insinuates that he, having had so much experience, must know more than younger men. We have had suspicions for some time that Dr. MacLeod has been 'touting,' but we have never had any definite proof until the present instance. On the 2nd of this month he approached a patient of mine, who is the caretaker in the local golf club, and the following conversation ensued: 'You are looking very badly?' 'I have one of my headaches,' she replied.

I must give you something for it,' said he, 'but as I cannot examine you here, come to my house to-morrow, and I will see what I can do for you.' She demurred, but he overpersuaded her. She went to his house, and he kept her there for one and a half hours, and examined her eyes, etc.

"I heard a rumour of this on the 4th instant, and went at once to my patient, when she told me exactly what occurred. She said she had no wish to leave me, and was quite satisfied with the way I had always treated her and her family.

"Dr. D. T. MacLeod had a practice at Dunvegan, Jews' Walk, Sydenham, some years ago, which he said he left because his health broke down through overwork.

"Dr. Tripp is quite in sympathy with me, and will combine with me in any concerted action which may be necessary.

"I have submitted above facts to the Medical Defence Union, who advised me to communicate with you. I have not approached Dr. MacLeod on the subject.

"What do you advise?

"Yours truly,

"R. W. MULLOCK."

MOTOR CARS FOR MEDICAL MEN.

A HAND-CLEANER FOR MOTORISTS.

THE motorist or cyclist who believes in the efficiency of "the master's eye" in promoting the duration and good working of his engine or machine is likely to attend to many minor repairs for himself. One of the greatest disadvantages in doing so is that any handling of the working parts of a motor or cycle usually leaves the hands blackened and greasy. The "Flash" hand-cleaner supplied by Messrs. Brown Brothers, Limited (Great Eastern Street, London, E.C.), is introduced to provide a more efficient cleansing agent for such cases. It is a paste containing a soapy basis with a considerable proportion of ground pumice; the latter greatly facilitates the removal of dirt and grease, and the preparation is most useful for its purpose. It is described as being antiseptic, but does not appear well suited for surgical cleansing, which is, of course, not the purpose for which it is intended.

THE COST OF MOTORING.

DR. R. MARTIN (Medical Officer Banbridge Dispensary District, co. Down) writes: I have read with much interest the article on "Motor Cars for Medical Men" in the JOURNAL of January 2nd, and also Dr. Cropper's remarks and those of Dr. Relton in the issue of January 16th. In connexion with this I would like to give my experience. In the middle of October, 1907, I purchased a 10-h.p. two cylinder Chamber's car, and up to the present time I have covered 7,500 miles, and my total out-of-pocket expenses for the year and three months is £43 14s. 5d. This covers petrol, oil, grease, brasso, and other sundries, also tyres, in reference to which I may say I have still in use a serviceable set and two repaired covers, at least good for many miles, for the front wheels. This works out at 1.4d. per mile; and, seeing that I ran the car from the first as a novice, the result is exceedingly satisfactory. In addition, I had a man for cleaning and washing, but only that my work is so heavy I could easily do this myself. His wages are not included, as he does gardening and other work as well. With regard to depreciation, I would consider 15 per cent. ample, as at the end of five years—say, doing 4,000 to 5,000 miles a year—the car should have a very decent second-hand value. My cost is much less than horses, and the comfort and convenience of the car not to be compared with them.

LITERARY NOTES.

Malaria is the title of a new international journal whose scope is indicated by its name. It will be published quarterly by J. Ambrosius Barth, of Leipzig. The editor is Dr. C. Mense, of Carlsbad. He will have the advantage of the co-operation of Professor Ronald Ross in England, Dr. MacCallum, of Baltimore in the United States, Dr. Nocht in Germany, while France will be represented by Dr. Sergent, of Algiers, and Italy by Professor Angelo Celli. The yearly subscription will be 20 marks.

The publication of a work entitled *Essai sur la Société Médicale et Religieuse au XIIe Siècle; Gilles de Corbeil, Médecin de Philippe Auguste et Chanoine de Notre Dame*, 1140-1224, by M. C. Viellard, is announced. Professor Ch. V. Langlois contributes a preface. The book is published by Honoré Champion, of Paris.

Reference was made in the JOURNAL of January 23rd to the difficulty sometimes experienced in tracing quotations familiar to every one to their source. As an instance, *Quos Deus vult perdere prius dementat* was cited, with Dr. Birkbeck Hill's suggestion that it is probably a rough translation of a fragment of Euripides. As some of our readers are keen in this kind of literary chase, the following note by Malone may be of interest. We quote it as it is given in the edition of Boswell's *Life* of Johnson published by J. M. Dent in his series of "Temple Classics":

Mr. Boswell was furnished by Mr. Richard How, of Apsley, in Bedfordshire, as communicated to that gentleman by his friend Mr. John Pitts, late Rector of Great Brickhill, in Buckinghamshire:

"Perhaps no scrap of Latin whatever has been more quoted than this. It occasionally falls even from those who are scrupulous even to pedantry in their Latinity, and will not admit a word into their compositions which has not the sanction of the first age. The word *demento* is of no authority, either as a verb active or neuter. After a long search for the purpose of deciding a bet, some gentlemen of Cambridge found it among the fragments of Euripides, in what edition I do not recollect, where it is given as a translation of a Greek Iambick:

'Ον Θεος θελει απολεσαι πρωτ' αποφρεναι.

"The above scrap was found in the handwriting of a suicide of fashion, Sir D. O., some years ago, lying on the table of the room where he had destroyed himself. The suicide was a man of classical acquirements; he left no other paper behind him."

Another of these proverbial sayings,

Incidit in Scyllam, cupiens vitare Charybdim,

I some years ago, in a note on a passage in *The Merchant of Venice*, traced to its source. It occurs (with a slight variation) in the Alexandreis of Philip Gualtier (a poet of the thirteenth century), which was printed at Lyons in 1558. Darius is the person addressed:

Quo tendis inertem,
Rex periture, fugam? nescis, heu! perdite, nescis
Quem fugias: hostes incurris dum fugis hostem
Incidis in Scyllam, cupiens vitare Charybdim.

The author of this line was first ascertained by Galleottus Martius, who died in 1476; as is observed in Menagiana, vol. iii, p. 130, edit. 1762. For an account of Philip Gualtier, see Vossius, *De Poet. Latin.*, p. 254, fol. 1697.

A line not less frequently quoted than any of the preceding, was suggested for enquiry, several years ago, in a Note on the Rape of Lucrece,

Solamen miseris socios habuisse doloris.

But the author of this verse has not, I believe, been discovered.

With reference to the "Greek Iambick" above quoted we cannot say with Holofernes, "Ho! Ho! I smell false Latin"; but it seems to us, in the words of Launcelot Gobbo, to have "a kind of smack." We give it as it is printed, but we may point out that it does not scan and cannot be construed. We are informed by a learned clerk of Oxenford that there is no such word as *αποφρεναι*. It is suggested that the line is a bad attempt to translate *Quem Deus vult perdere*, etc.

The fact that houses may be infected with diseases, one tenant after another dying of the same malady, was noticed as long ago as in the fifteenth century. Messer Agnolo Pandolfini, a rich merchant prince of Florence, in his treatise "Del Governo della Famiglia," quoted by Mrs. Oliphant in her *Makers of Florence*, thus advises his sons as to the taking of a house, giving them as an example his own experience:

I chose a house in a good neighbourhood and well-known street, where honest citizens lived of whom I could without danger make friends, while my wife found good company among their wives. And I informed myself who had lived in it in times past, and inquired whether they had been healthy and fortunate. There are certain houses in which, it would seem, no one can live happily.

To *Guy's Hospital Gazette* of December 26th, 1908, some interesting reminiscences of Thomas Addison are contributed by Sir Samuel Wilks. He says that when he first entered Guy's in the early Forties of the last century Addison was the most notable man there. It was at once apparent that he was a leader of men. It was a real treat to hear Addison talk, often adorned with a Latin quotation, as his scholarship was good, and with an occasional outbreak of oratory. When Jenner demonstrated the absolute difference between typhus and typhoid fever, Addison was loth to admit it, and it is interesting to learn that Gull took a considerable time to give it his full adhesion. Addison was one of the physicians of his day to adopt Laënnec's method of physical examination of the chest. An elder colleague of Addison spoke of the stethoscope as the new plaything, just as leaders of the profession at a later date called the laryngoscope a physiological toy. Addison's dogmatic manner was contagious, for Sir Samuel Wilks tells us that he remembers hearing at one of the chief medical societies when a young aspirant to fame displayed some conceit in describing a case, a remark to the effect that Guy's men thought themselves the *crême de*

la crême. He thinks this opinion was a general one at the time, and he is of opinion that it may be as beneficial for an institution to have a little conceit of itself as for an individual to think well of himself. Sir Samuel Wilks would evidently join in the prayer of the Scots minister, "God, gie us a guid conceit o' oorsels." Addison had been a colleague of Bateman at the public dispensary, and was a great authority on skin diseases. This doubtless helped to prevent his overlooking the discoloration of the skin which is the principal outward and visible sign of the disease which bears his name. Notwithstanding Addison's power over others he was a man of nervous temperament, subject to fits of despondency. This led him to resign his hospital appointments while still in the vigour of life. This was felt to be such a loss that a deputation headed, Sir Samuel Wilks thinks, by the late Dr. Galton, waited upon him to urge reconsideration of his decision. Addison's answer was, "My work is over; I have left it for others." He left London, and not long afterwards passed beyond that bourne from which no traveller returns. He was born in 1793 and died in 1860.

Dr. Farquharson, the absence of whose genial personlaity from Parliament, if it has not exactly eclipsed the gaiety of nations, has at any rate added to the dullness of the House of Commons, lately delivered an address in Aberdeen on the humour, phrase-making, caricature, and oratory of that assembly. As illustrations of the humour of the House of Commons he quoted a number of "bulls." Among these were: "Mr. Speaker, will you allow me to recapitulate what I had intended to say?"; "The right hon. gentleman shakes his head, but I am very sorry to hear it"; "Mr. Speaker, I think I see a noise"; "Certain officials are hide-bound with red tape"; "The keys of the Irish difficulty were not to be found in the empty pockets of the landlord"; "It is a lie, Sir, and it is high time we nailed this lie to the mast"; "The present state of affairs is enough to make a man commit suicide or perish in the attempt"; "Mr. Speaker, I smell a rat, I see him floating in the air, but mark me, Sir, I will nip him in the bud"; "The apple of discord has been thrown into our midst, and if it is not nipped in the bud it will burst into a conflagration which will deluge the world"; "You may depend upon it that the pale face of the British soldier is the backbone of the Indian Army." Dr. Farquharson had apparently forgotten Lord Cross's memorable statement that he "heard a member smile," and Castlereagh's still more memorable declaration that he was about to "embark on the chief feature on which this question hinges." All who knew Dr. Farquharson, either as physician or as legislator, and in particular many members of the British Medical Association, in which he was at one time a prominent figure, will, we are sure, join us in wishing the genial Laird of Finzean many years of happiness in his mountain home.

One of the most impressive and picturesque sights that Florence offers to a stranger is a procession of the Misericordia. But probably few of those who have ever seen the black silent figures carrying their burden through the crowded streets of the city have a clear idea of their origin, which affords one more proof of the wonderful charity which flourished side by side with the most brutal indifference during the middle ages. The confraternity was founded in the thirteenth century by a Florentine porter, Pietro Borsi, with the twofold object of employing the spare time and reforming the vices of his fellow-porters whilst they were waiting for jobs in the Piazza of San Giovanni. Borsi first persuaded them to fine each other for swearing, and then with the proceeds to buy litters for the use of the public, each porter in his turn giving his services in carrying the sick and wounded to the hospital and the dead to the burial. In those troubled times, when street fights were things of daily occurrence, the brothers had plenty of opportunity for their charity, and the confraternity grew and developed. The Brothers now often nurse the sick in addition to their other labours, but the institution remains the same, and is still flourishing in Florence. All classes from the highest to the very lowest belong to it, taking their turns when summoned by their bell. The long black robe worn by the Brothers, which disguises them as completely as a domino, is used to prevent their ever working upon the gratitude of their patients, from whom they may only accept a drink of water in recompense of their services.

Medical News.

A SWISS Neurological Society has been formed, the head quarters of which are at Zürich. The President is Professor von Monakow.

A LAW making compulsory the pasteurization of all milk and milk products, other than those from cows which have passed the tuberculin test, came into force in Chicago on January 1st.

THE discussion on ulcerative colitis at the Medical Section of the Royal Society of Medicine has been adjourned until Wednesday, February 10th, at 5.30 p.m. The discussion will be continued by Sir Patrick Manson.

SIR JAMES CRICHTON-BROWNE, Treasurer of the Royal Institution, announces that the sum of £10,000 had been anonymously and unconditionally placed at the disposal of the managers for the purposes of the institution by a lady.

THE anniversary dinner of the Medical Society of London will be held at the Whitehall Rooms, Hôtel Métropole, on March 10th. Further particulars can be obtained from the Secretary, 11, Chandos Street, London, W.

A COURSE of lectures and demonstrations on the feeding of infants will be given at the Infants' Hospital, Westminster, by Dr. Ralph Vincent, on the afternoons of Tuesday, Thursday, and Friday during next and the following week.

THE annual oration before the Hunterian Society will be delivered by Dr. Rawes on Wednesday, February 10th, at 8.30 p.m., in the theatre of the London Institution, Finsbury Circus. The title is Psychiatry: a Retrospect. All members of the medical profession are invited.

ON the recommendation of the Morison Lecturer, the Treasurer of the Royal College of Physicians of Edinburgh has awarded the 1908 Morison medals for meritorious attendance on the insane, along with the usual premiums, to Mrs. Mary Gandie, Royal Asylum, Montrose, and Mr. Donald Munro, Inverness District Asylum.

AT a meeting of the Cold Storage and Ice Association to be held at the Royal Society of Arts, Adelphi, at 7.30 p.m. on Tuesday next, Mr. C. J. Tabor will read a paper on the preservation of food by artificial refrigeration; among the subjects discussed will be bone taint, the effect of refrigeration on the fat cells of fish, on poultry, and on goods stored in a bad condition.

THE Council of the British Medical Association, on the recommendation of the Medico-Political Committee, has appointed a special subcommittee, consisting of Dr. J. A. Macdonald, Mr. H. W. Armit, Dr. E. R. Fothergill, Dr. C. E. Haslip, Dr. E. H. T. Nash, and Mr. T. Jenner Verrall, to report on the proposed establishment of the central church council for the diocese of London, and to consider the whole subject of spiritual healing.

H.R.H. THE PRINCESS OF WALES has kindly consented to receive purses for the National Hospital for the Paralysed and Epileptic some time during the autumn. These purses will be for the Jubilee Fund, for which over 500 collections are being made throughout the country, some by former patients and pensioners of the hospital. The Duchess of Albany is President of the Executive Jubilee Committee, which hopes to raise £50,000. A portion of this sum will be devoted to an extension of premises, the building of which began a few days ago.

THE meeting at which the claims of the British Medical Benevolent Fund to the support not only of the profession but of the public will, we may remind readers, take place at the Royal College of Physicians of London on Tuesday next, at 5 p.m. The chair will be taken by Sir John Tweedy, President of the Fund, and an address will be delivered by the Bishop of Oxford, son of the late Sir James Paget, at one time president of the Fund. Among other speakers will be the President of the Royal College of Physicians of London.

THE election of Professor S. Kitasato, Director of the Infectious Diseases Institute at Tokyo, to the Honorary Fellowship of the Royal Society, was made the occasion of a dinner given in his honour by a number of his pupils and friends. Congratulatory addresses were delivered by Professor Kitajima and Dr. T. Takaki, Director of the Formosan Medical Institute, who said that whatever had been done for the improvement in public health in Formosa should be credited to Professor Kitasato, under whom he had studied bacteriology. It may be mentioned that the document in which the honour bestowed on Professor Kitasato was conveyed to him was in Latin.

British Medical Journal.

SATURDAY, FEBRUARY 6TH, 1909.

THE THERAPEUTIC EFFECTS OF RADIUM.

THE question of the hour in medicine is the healing virtue of radium. Whether it will, like so many other things in the domain of therapeutics that come like shadows, so depart, fade away like Hans Breitmann's "barty" into the *Ewigkeit*, remains to be seen. But whatever be its fate it has not, like the gem of purest ray serene of which Gray sings, been left in the dark unfathomed caves of the unknown; it has made its entrance on the stage of medical life in a glare of publicity of which there are few instances on record. Last week an amusing and unedifying example of too "up-to-date" journalism was shown by the London Press. An announcement of the foundation of a radium institute which was wrong in nearly each and singular particular was made, with every appearance of authority, in all the newspapers. We were able to give the correct version of the facts. As far as we know, not one of the papers, which had evidently been victimized by some parties interested in creating a "boom," offered any apology for a piece of carelessness which caused serious annoyance in various quarters, and which might have done something to imperil the success of an enterprise that may possibly have a great future before it, and, at any rate, ought to be allowed a fair field for its development. The error was indeed corrected, but without any of the pomp of journalistic heraldry with which it was announced Therefore, for the sake of any of our readers who may have been misled by the announcement in the newspapers, and who may have overlooked the statement made in the JOURNAL of last week, we think it well to repeat that the Radium Institute is to be known simply by that name, and that there has been no question of granting it a Royal Charter. It is understood to be founded in accordance with the wish of the King, and the means of carrying the scheme into effect have been supplied by Lord Iveagh and Sir Ernest Cassel. It is to be altogether independent of the Imperial Cancer Research Fund or of any other institution. A site has been secured in the neighbourhood of All Souls' Church, Langham Place. The committee under whose direction it will be conducted consists of Sir Frederick Treves (chairman), Sir Lauder Brunton, Sir Malcolm Morris, Sir William Ramsay, Professor Sir J. J. Thomson of Cambridge, and the Hon. R. J. Strutt. The services of a highly competent man as medical director have already, we believe, been secured. Some time must, of course, elapse before the new institution is in working order. It is intended to charge suitable fees to those who can afford them; for the cost of radium is very great, and owing to causes which need not be discussed here it has lately risen to a degree that makes it difficult to procure a sufficient supply. The justification of the existence of the Radium Institute lies in this fact; for under existing conditions it is practically impossible for individual medical men to obtain enough for use in any but the smallest way. It will be the special function of the new institute to determine the therapeutic potentialities of radium under strictly scientific conditions and on a scale sufficiently large to afford a solid basis for a final judgement. It is an interesting experiment, and the profession will watch its progress and issue with interest.

The physical and chemical properties of radium are fully described in a special article published at page 347. Here we are concerned only with its therapeutic effects. That radium has an irritant and caustic action on animal tissues was discovered by accident. The idea of applying it in the treatment of growths, malignant and other, was a natural inference. For two or three years past a Radium Institute has been in existence in Paris, and to Dr. Louis Wickham and his collaborator, Dr. Degrais, we are chiefly indebted for what is known about its therapeutic action.[1] They claim for radium the following effects: (1) The modification of diseased tissue, the promotion of cicatrization and cure of morbid conditions, with or without previous ulcerative destruction; (2) analgesia; (3) an apparent bactericidal action. The modifying action on morbid tissues varies greatly. Thus, a warty epithelioma is more resistant than the ulcerative form of the disease, or than lupus tissue. The analgesic properties of radium are most marked in superficial pain, hyperaesthesia, or itching. In deep-seated pain its effect was uncertain. Its bactericidal power has been successfully tested on staphylococci and gonococci. To the Medical Congress held at Rheims in August, 1907, Dr. Wickham presented the results of a study of the therapeutic effects of radium extending over several years, and comprising 1,500 applications made in 1,100 cases. His experience led him to the conclusion that it has a beneficial action in certain kinds of skin disease—dry, chronic, and localized in character, such as certain eczemas, certain forms of neurodermatitis, lichens, psoriasis, vascular and pigmented naevi, tuberculous lesions, and cutaneous epithelioma.

It is in the treatment of cancer that the greatest interest will be felt in regard to the possibilities of radium. Wickham and Degrais confirm the conclusion arrived at by M. Danlos that it affords the best means of dealing with small cancroids. They go beyond this, and claim to have practically cured cancer of the face. "In all cases," they say, "one "obtains a surface of repair which is smooth, on the "same level as the surrounding healthy tissues; the "white discoloration soon takes on a normal tint; to "the touch it gives a sensation of appreciable supple-"ness in cases where the lesions were situated about "orifices, and there practically never occurs retractile "cicatrization. So perfect is the scar that it is some-"times difficult to find the traces of the former lesion." Wickham holds that radium has a selective action on cancer cells, and that in some cases it can modify or destroy them without producing any visible lesion. A summary of their results and of those of Dr. Dominici was given in the BRITISH MEDICAL JOURNAL of January 23rd, p. 242, where the method of application is described. Reference to the most recent results obtained by Wickham is made in the address by Sir Frederick Treves, which is published in this issue of the JOURNAL. It should be stated that Dr. Wickham, though not perhaps unnaturally optimistic in his estimate of the therapeutic properties of radium, is careful not to offer it to the profession as a cure for

[1] See communications to the International Medical Congress of Dermatology held at New York, September, 1907; to the Congrès de Médecine held at Rheims, October, 1907; and to the Paris Académie de Médecine, January, 1908.

all forms of cancer, or an infallible cure of any. He thinks it a useful addition to the *x*-ray treatment, to surgical procedure, and to the use of caustics. He cherishes a hope that means may be discovered of making it possible to apply radium emanations to the deeper parts of the body.

At the Congress of the International Surgical Society held at Brussels in September, 1908, Dr. James H. Sequeira gave his experience of the treatment of cancer by radium. He has found that the cases in which radium can be usefully employed are few. "It "is," he says, "impossible to apply it to any large area "on account of the small quantity at command." He has used it chiefly in conditions in which it is impossible or undesirable to apply the *x* rays, for instance, in the treatment of small ulcers of the nose and other cavities, but otherwise he does not find that he can do more with radium than he can with the *x* rays.

Sir Malcolm Morris and Dr. Ernest Dore state that in the treatment of certain forms of malignant disease radium has undoubtedly a place, and has succeeded where *x* rays have failed.[1] The reason of this is because it can be applied in small cavities not directly accessible to the *x* rays, and in situations, such as the neighbourhood of the eye, where the use of rays is inadvisable. In other forms of malignant disease radium, whether applied externally or embedded in the tissues, has not been of much use. Cases of rodent ulcer cured by radium have been recorded by Mackenzie Davidson, Hartigan, Holzknecht, and others.

Enough has been said here, and more will be found in Sir Frederick Treves's address, to make out a prima facie case for radium as at least a useful adjuvant in the treatment of cancer. But so far there is little to prove that it is more effective than the *x* rays, and these, we know, often fail after what looks like a brilliant initial success. While some believe radium to have a selective action on cancer cells, others see nothing to justify this inference. It is now well known that in some cases a process occurs in epithelioma which leads to spontaneous cure. This fact must never be lost sight of in estimating the results of treatment of cancer. Again, assuming that radium has all the virtues ascribed to it by those who have used it, the inevitable question rises to the mind, How long will the apparent cure last?

To put the matter briefly, the problem which the Radium Institute has before it is this: Is radium a new healing force or merely a very powerful and penetrating caustic?

THE REGISTRAR-GENERAL'S REPORT.

THE annual report of the Registrar-General for England and Wales is usually one of the most interesting Blue Books of the year, for it throws much light not only on the prevalence of various diseases, but also on many social questions; it is true that the trustworthiness of some of the data has been called in question, but as to the accuracy of the broad facts there can be little or no doubt. A short statement of the principal points in the seventieth annual report—that for 1907—is published in the SUPPLEMENT, but we may here call attention to one or two matters of general interest.

In the first place, it appears that the decline in the mean annual rate of increase of population which has been observed during the last thirty years has continued, the rate being 11.27 in 1907, as compared with 11.69 in the previous year, and with 12.10 in the quinquennium 1901-05. The increase or decrease of population is governed by two factors—the balance between births and deaths, and the balance between emigration and immigration. So far back as trustworthy statistics extend there has always been an excess of births over deaths, and an excess of emigrants over immigrants. The natural increase is the excess of births over deaths, and the diminished rate of increase of the population is due to the birth-rate having declined more rapidly than the death-rate. The birth-rate reached its highest known point in 1876, when it equalled 36.3 per 1,000 of population; since then it has, with slight fluctuations, steadily fallen, and in 1907 reached the lowest point on record, 26.3, which is 0.8 below that recorded in 1906, and 2.1 below the average for the ten years 1897–1906. As will be seen from the statistics published last week (page 310), the rate in 1908 was 0.2 per cent. higher than in 1907.

The proportion of marriages among marriageable persons in the population has decreased since 1876 in the proportion of 108 to 93. The proportion of spinsters in the marriageable population has always been smaller than the proportion of bachelors, but appears to be tending to increase. Age of marriage has undoubtedly an influence on the birth-rate, but, as is pointed out in the report, the ages of men at marriage are, so far as concerns the growth of the population, of much less importance than the ages of women at marriage. The fact that child-bearing is practically limited to the period between the ages of 15 and 45 years, and that the fertility of married women is highest at the earlier age groups, makes it evident that any great alteration in the ages of women at marriage must necessarily have important effects on the birth-rate. Men and women intermarry at all ages; but, taking the records for the ten years 1898-1907 as an example, over 40 per cent. of the bridegrooms, and nearly 60 per cent. of the brides, were at their first marriage under 25 years of age, while the mean age at marriage in those ten years averaged 26.9 years for all bachelors and 25.3 years for all spinsters.

The number of deaths attributed to cancer has, as is well known, shown for many years a very marked and steady increase. As it is a disease of maturity and age, the best way of measuring its increase is to compare the mean death-rate per million living at ages 35 years and upwards. In the *Decennial Supplement* Dr. Tatham showed that this rate had risen from 1,834 in the decennium 1881–1890 to 2,316 in 1891–1900; he now adds that the corrected rate was 2,645 in the quinquennium 1902–1906 and 2,734 in 1907. A comparison with earlier statistics involves many fallacies, one of the chief being, no doubt, that diagnosis is more careful than formerly—a view borne out by the fact that the statistical increase is shown to be largely due to the more frequent detection of internal cancer at an operation or on *post-mortem* examination. That this is not the whole explanation seems fairly clear for several reasons. Among these is the fact that the increase has gone on apparently at much the same rate during the last few years, although there has not, so far as we can judge, been any corresponding increase in the readiness of surgeons to operate in suspected cases of internal cancer. The statistics have for years past indicated that the deaths from cancer at ages over

[1] *Light and X-Ray Treatment of Disease*, London, 1907

35 years are increasing more rapidly among males than among females. In the ten years 1881–1890 there were 60 deaths among men to 100 deaths among women; in the ten years 1891–1900 the proportion had risen to 69; in the five years 1902–1906 to 77, and in 1907 it was 79. In the seven years which ended in 1907 there died from cancer, in round numbers, 85,000 men and 123,000 women; the greater number of deaths among women was accounted for entirely by the fact that the generative and mammary organs of women are much more frequently the seat of disease than are those of men. In the period of seven years ending with 1907 the recorded deaths of males from malignant disease, affecting other than the generative and mammary organs, were equal to a rate of 730 per million, whilst the deaths of females with the same reservation did not exceed 594 per million. During this same period of seven years of every 10,000 males dying of cancer, 2,157 suffered from cancer of the stomach, while of the same number of women dying of cancer 2,241 suffered from cancer of the uterus. Further analysis of the statistics shows the very large part which cancer of the gastro-intestinal system plays in producing the mortality from the disease in both sexes. Among males the organ most frequently invaded was the stomach, which was the seat of disease in nearly 22 per cent.; the liver and gall bladder were invaded in nearly 13 per cent. of the whole, the rectum in 10 per cent., and the intestines in 8 per cent. Taken together, the parts here specified were attacked in more than half the cases. Among females, while the generative and mammary organs were affected in more than two-fifths of the total cases, a further two-fifths was contributed by affections of the stomach, liver, intestines, and rectum taken together.

When commenting in the *Decennial Supplement* on the fact that the total death-rate from all forms of tuberculosis had within the previous forty years fallen by nearly 38 per cent., Dr. Tatham drew attention to the fact that according to the statistics available, considerable changes had taken place in the fatality of its several forms. Whilst, on the one hand, tuberculosis of the lung, the brain, and the peritoneum is now less destructive than formerly, on the other hand, there has been a considerable increase in the fatality of the other manifestations of tuberculosis, including general tuberculosis and scrofula, as well as tuberculous affections of the bones, joints, and other organs not mentioned above. In the ten years 1891–1900, out of every hundred deaths from tuberculosis 69 were ascribed to phthisis, 11 each to tuberculous meningitis and tuberculous peritonitis (formerly called "tabes mesenterica,") and 9 to other forms of tuberculosis. During the same period the death-rate from tuberculosis was 2,010 per million of the population, and 11 per cent. of the deaths from all causes were due to this disease. In 1907 the death-rate was 1,605 per million, and represented 10.7 per cent. of the mortality from all causes. It appears that of the total number of deaths from tuberculosis at all ages 18 per cent. were those of children under the age of 5 years, the rate for boys being 277 and for girls 230 per million living. The mortality-rates from phthisis show a decline at practically every period of life as compared with the previous quinquennium, although it has been rather greater in the country than in the town.

The number of deaths attributed to alcoholism and delirium tremens was 2,201 (1,328 males and 873 females), but Dr. Tatham again calls attention to the fact that the deaths actually assigned to these causes form an imperfect measure of the mortality caused by alcoholic intemperance, the best available indication being probably furnished by the combined mortality from alcoholism and cirrhosis of the liver. This mortality, which has been increasing for many years, reached its highest point in 1900, when the rate was 623 per million men living above 25 years of age, and 449 among women above that age. In the seven succeeding years there was a steady decline, equal in the case of men to 24 per cent., and in that of women to 19 per cent.

Puerperal sepsis accounted for the deaths of 1,465 women in 1907, and 2,055 deaths were attributed to other diseases or accidents of pregnancy or childbirth. Of this total, 102 deaths were assigned to abortion or miscarriage, 70 to puerperal mania, 449 to puerperal convulsions, 608 to placenta praevia or flooding, and 826 to other accidents of pregnancy or childbirth. In 224 out of the 826 deaths last mentioned the cause was precisely stated—this was, ectopic gestation in 74 instances, ruptured uterus in 26, inversion of that organ in 7, deformed pelvis in 27, adherent placenta in 27, conditions necessitating Caesarean section in 16, and malpresentation in 6. Of the 2,055 cases in this category, 352 were further complicated, the complicating cause being embolism in 178 instances, diseases of the heart or blood vessels in 48, kidney disease in 43, bronchitis or pleurisy in 27, and pneumonia in 6. These 2,055 deaths, added to those from the puerperal septic diseases, numbered 3,520, and were equal to a rate of 3.83 per 1,000 births. In the ten years immediately preceding, the average proportion had been 4.39 per 1,000.

ALCOHOL AND CHILDREN.

The effect of alcohol on the mind of the child has recently been very fully discussed by Dr. Leopold Lang, of Vienna,[1] who has arrayed a considerable body of evidence, proving, first, that drunkenness in the parents tends to produce grave mental defect in the offspring, whether one or both parents are intoxicated only at the time of conception or are habitual drunkards; and, secondly, that the drinking by juveniles of alcoholic liquors, even in moderate doses, seriously affects their mental capacity and development. These two questions belong to different departments of inquiry and differ in complexity, the first being a biological question beset with great difficulties and impossible of solution by statistical methods alone, whilst the second does very largely admit of statistical proof if supplemented by psychological observation and experiment. This difference in the orders to which these two questions belong is reflected in the opposing views held regarding the first question, whereas on the second there is, we believe, general agreement amongst medical men.

In support of the ancient belief that children conceived in drunkenness are, as Burton said, "never "likely to have good braines," Dr. Lang adduces the evidence of Lippich, who found that out of 97 such children only 14 were normal; of Bourneville, who out of 1,372 idiot children in whom the circumstances were known, found that 321, or 23.4 per cent., were so conceived; and of Bezzola in Switzerland, who found that of 68 idiot or profoundly imbecile children, the conception times fell, in one-half the cases, in New Year, Carnival, or Vintage—all of them periods of alcoholic excess—

[1] *Die kindliche Psyche und der Genuss geistiger Getränke.* By Dr. Leopold Lang. Vienna: Josef Safár. 1907. (Roy. 8vo, pp. 41. M.1.40.)

whilst the conception times of the other half were evenly distributed over the remaining thirty-eight weeks of the year. These figures referred only to one canton, that of Grisons. To broaden the basis of his inquiries, therefore, Dr. Bezzola plotted a conception curve for the whole 8,196 weak-minded children in Switzerland who in the year 1897 were unable to attend school on account of their mental condition, and contrasted this with a general conception curve obtained from almost a million birthdays of the ordinary population. The result, Dr. Lang says, proved highly significant. In February the curve of the weak-minded reached far above the general curve, sank slightly in March and then rose again in April, to reach a first maximum which lasted up to June. Thereafter the curve sank and remained low during the summer months—periods of hard work with no time for excessive indulgence—and then rose steeply in October, to fall again below the general curve in the last two months of the year. February, therefore, in which falls Carnival; April to June, the chosen months for weddings and feasts; and October, Vintage time, showed notable elevations of the weak-minded over the normal curve, and satisfied Dr. Lang of the truth contained in the observation of an Austrian elementary school master, who said that when in the first class they found many feeble-minded scholars, they knew that six years before there had been a good wine year. Fluctuations exactly similar to those recorded by Bezzola were observed by Hartmann in plotting the conception curve of 214 criminals in Zurich. Mainly on the above-mentioned grounds Dr. Lang bases his belief in the special poisoning of germ cells—what Forel has termed blastophthoria—by alcohol at the time of conception, a belief which was perhaps embodied in the Spartan nuptial laws of Lycurgus.

On the wider question of the habitual and excessive consumption of alcohol producing a defective progeny, Dr. Lang does not bring forward any new evidence, but quotes the well-known statistics of Bourneville, who showed that of 2,891 juvenile first admissions (idiocy, epilepsy, weak-mindedness, and hysteria) to the Bicêtre and Vallée, 43.2 per cent. had drunken fathers; 3.6 per cent. drunken mothers; in 1.9 per cent. both parents were drunken, and in 51.3 per cent. the parents were abstainers. According to the statistics of Bleuler of Zurich, 70 per cent. of the epileptics of Burghölzli Asylum had an alcoholic heredity; Lunier asserted that 50 per cent. of the idiot and imbecile children of France had drunken parents, and much evidence supporting the opinion as to the baneful action of alcohol has been published by Schmid-Monnard, Fletcher Beach, and Hitzig. Dr. Lang recalls the fact, frequently commented upon by other writers, that in Norway, where in 1816 the distillation of spirits was declared free, drunkenness subsequently greatly increased, followed in the years 1825 to 1835 by an increase in the number of idiots amounting to 150 per cent.; whereas after the restrictions placed upon the consumption of spirits in that country the number of idiots fell in ten years by more than 16 per cent., notwithstanding an increase in the population of 14 per cent.

In discussing the effect of moderate drinking by juveniles, Dr. Lang gives the results of considerable numbers of experiments upon students and others as to the mental output of work with alcohol and without. Most of these experiments, conducted by Drs. Führer, Smith, Demme, Rüdin, Kürz, and others, are already widely known and do not require further mention, as they only corroborate what is already well known from investigations in this and many another country—namely, that alcohol, even in moderate doses, acts as an immobilizer of nervous functions, beginning with the highest and latest acquired, enfeebling the power of voluntary attention, retarding the power of calculation, and reducing ideal associations from logical and complex to less complex associational levels. Dr. Lang, however, gives one or two particulars worthy of notice. The experiments with students showed that on the day following the drinking of small quantities of alcohol, even though they appeared to themselves to have slept better than usual, the output of work was less than the normal. Another interesting point concerned the relative number of marks earned by school children, arranged according to whether they never drank alcohol, only exceptionally, or every day. The tables furnished by Dr. Lang, taken from the results of Dr. Bayer of Vienna and those of the Association of Abstinent Teachers in Holland, give parallel results. They show that in the "very good" and "good" classes the abstainers head the list by considerable proportions; in those giving "moderate" or "sufficient" results the proportions are about equal, and in those giving "inadequate" or "bad" results the proportion of those who drink is more than twice as great as of the abstainers. A surprising fact related by Dr. Lang is the considerable proportion of school children in Holland, Austria, and Germany who drink beer, wine, and even spirits. To take only one example: Inquiries in Vienna disclosed the fact that in that town more than 53,000, or over 32 per cent., of the whole number of school children, regularly drank beer; nearly 20,000, or over 11 per cent., wine; and nearly 6,000, or 3.5, spirits. To what extent juvenile drinking obtains in our country we do not know. Accurate information on this point would be valuable, particularly if at the same time the educational results could be obtained and compared from this point of view. We imagine, however, that in this country juvenile drinking is of infrequent occurrence, and that in this matter, at least, we can say, "Let the "galled jade wince, our withers are unwrung."

THE ACCURACY OF THE *MEDICAL REGISTER.*

WE draw the particular attention of all registered medical practitioners to the letter from the Registrar of the General Medical Council, which is published at p. 369. It is very much to the interest of the medical profession that the *Medical Register* should be accurate, and Section XIV of the Medical Act, 1858, empowers the Registrar to write a letter to any registered person, addressing him at his address on the *Register*, to inquire whether he has ceased to practise or has changed his residence. If no answer be returned to this letter within a period of six months, the name may be erased from the *Register*. When a special effort was made some years ago to comply with this section, we remember that we afterwards received a number of complaints from medical practitioners who found that their names had been erased. On Monday last circulars from the Registrar were addressed to every person whose name appeared on the *Medical Register*, except those belonging to the Royal Navy, Army, and Indian Medical Services whose names appear on the official lists of those services. It is important that every practitioner who has received the circular should

reply, and that any registered practitioner who may not have received the circular and who is not a member of one of the services mentioned should communicate at once with the Registrar of the General Medical Council, 299, Oxford Street, London, W. Notices have been sent to all the principal papers in London, in the provinces, in Scotland, in Ireland, and in the Colonies, drawing attention to the issue of the circular. The expense of issuing the circular is estimated at about £300, but it is believed that the money will be well expended, inasmuch as the result ought to be to make the *Medical Register* of 1910 absolutely accurate. It is, as we have said, in the interest of all medical men to respond promptly to the inquiry. The intention we understand, is to remove the name in every case in which an answer is not received within the stated period. It must be recognized that the General Medical Council is in this dilemma: either it must leave on the *Register* the names of persons of whom no trace can be found, and who, very possibly, may be dead, or it must remove these names although the person is alive. Of the two, the latter seems to be the less harmful procedure, for whereas it is always possible to restore a name which has been taken off, provided the identity is safeguarded, to leave on the *Register* the name of a man who is dead gives an opportunity for personation.

THE EMMANUEL MOVEMENT.

In the British Medical Journal of January 16th, p. 171, we showed that the statement made by the leaders of the so-called Emmanuel movement in Boston that it had the sanction of the leading neurologists in New England was incorrect. Since then we have received a letter from Professor Coombe Knapp, of Harvard, who had evidently not yet seen the article just referred to, in which he says that when the new movement was begun one or two neurologists of Boston were consulted and that they, thinking that the work was to be under medical control, gave a partial approval to it. Other neurologists of Boston were not consulted at all and most of them at the outset regarded the movement with scepticism. When its true character was known, even those who had given a partial approval protested, but their protest was disregarded and they were constantly quoted as advising and approving of it. Now, he says, every neurologist of standing in Boston has recorded his condemnation of the movement. This shows that the clerical healers lost no time in shaking themselves free from any medical direction. Already we have the interviewer and the snapshotter showing them at work. An illustration of their methods is given from personal observation by Mr. Ray Stannard Baker, who had an opportunity of watching the practice of the Rev. Lyman P. Powell, of St. John's Church, Northampton, Massachusetts. His method is simply suggestion with or without hypnotism. Speaking of those who seek counsel of the priestly healers, Mr. Powell says: "Our idea, "of course, is to influence their subconscious "lives: to replace their hopelessness and moral weak- "ness with suggestions of power and virtue and "strength. We do not need to produce a hypnotic "sleep, except in rare cases, to reach this end. All "that is required is a relaxation of mind and body, "a repose, in which the deeper nature is open to "suggestion. We don't know why it is, but if good "thoughts and strong purposes are thus impressed upon "the mind of a patient in times of repose, these good "thoughts act upon and stimulate his life afterward. "He is cured, sometimes instantly, of his sickness or "his sin, but usually the treatments must continue for "some time." It might have been foreseen that the vaulting ambition of spiritual healers would not allow itself to be confined within the vague domain of "functional" diseases. Mr. Baker says he visited "one of Mr. Powell's patients who was afflicted with a "malignant internal growth and often suffered the "most excruciating pain. She had been more or less "bedridden for years and had taken all sorts of medicine "for relief. Mr. Powell has been treating her now "for many months, not promising a cure but merely "freedom from suffering. The pain instantly dis- "appears under his treatment, so that the patient "rests in perfect comfort or is even able to get up "and walk. In four or five days, however, the pain "returns, and Mr. Powell gives another treatment. "This summer a remarkable thing happened. Mr. "Powell was away on his vacation for several weeks, "and during a part of the time the woman suffered "acutely; but on the day she heard that Mr. Powell "was returning, so great was her faith in his power "to bring relief that the pain stopt before he "arrived. He is thus able to make the life of a suffer- "ing woman comfortable and even happy where it "was formerly wholly miserable." Assuming all this to be true, one may wonder where religion comes in here; it is a plain case of simple faith in a man working its effect in a favourable medium. We are told that the religious element is to be found in "the quieting "and hope-inspiring meetings of the church, where "every one is looking on the bright side of life." Then there is "the important matter of confes- "sion. Before a patient can be successfully treated "he must unburden his soul and let the minister "who is treating him understand to the depths all "the sources of his trouble. Without this it is "impossible to begin anew"—and so forth. It may be pointed out that this doctrine lay at the bottom of a rule of the mediaeval Church that a doctor in charge of a patient suffering from an illness which threatened to become serious should give up attendance within three days unless the patient went to confession and received communion. That devotional exercises may be of help in some cases is unquestionably true; religion is hope, and hope is a powerful medicine. In this way anointing and laying on of hands may be serviceable by ministering to a mind diseased which is beyond the reach of medicine. But if "spiritual healing" is to do good, cases must be carefully selected for its application. Such cases are limited in number, and they all bear the same character of neurosis. One who, in Hamlet's phrase, knows the stops of an unstable nervous system can play upon it and sound it from its lowest note to the top of its compass. It is a dangerous power which should be exercised only with the utmost caution and under skilled supervision. We therefore solemnly warn those well-meaning clergymen and others that they are employing an instrument which, if misused, may have the most harmful effects on sufferers. History is full of the evils wrought by such means, and abundant evidence could be brought forward to show that spiritual healing is apt to degenerate into superstition, and from that into unspiritual imposture.

"ARTIFICIAL LANGUAGES."

We have received a further communication from Dr. Sydney Whitaker complaining that we did not publish his letter in defence of Esperanto in full. We dealt with all the points in it that seemed to us of any importance. He repeats that we were guilty of a breach of the laws of grammar, and quotes the sentence which he thinks faulty. It is recorded that the father of Frederick the Great, once seeing a crowd of people reading a placard on a wall in Berlin, had the curiosity

to go near, and saw that it was a pasquinade on himself. He at once ordered it to be fixed lower on the wall so that it might be read more easily. In this spirit we quote the sentence which falls under the lash of the Esperantist Zoilus: "It [videlicet, language] is a "natural growth subject to modifications, as the people "whose means of expressing themselves it is, adapt "themselves to changes of environment, mode of life, "intellectual outlook, and moral conventions." We cannot see where Priscian's, or rather Lindley Murray's, head is scratched in this. Our blindness is like that of Teufelsdröckh, whose famous epitaph on a noble sportsman remained, he says, unengraven "for an "alleged defect of Latinity, a defect never yet fully "visible to myself." We have also received a letter from Dr. Major Greenwood, to whom our criticism seems superficial, and who finds our arguments unconvincing. We take leave to think that the superficiality is on the other side; and in regard to convincing, we can only say that the prosperity of an argument, like that of a jest, lies in the ear of him that hears it. Dr. Greenwood quarrels with our interpretation of Chaucer's lines about the prioress's talking French "after the scole of Stratford-atté-"Bowe." He says the poet was ridiculing her pronunciation. No doubt he was, but the fact remains that Anglo-Norman French was at the date of the famous pilgrimage spoken at Court, and there was a well-known nunnery at Stratford-le-Bow where Chaucer meant us to understand that the lady had been educated. The point seems to us to help our argument rather than that of Dr. Greenwood. All we wished to show was that language inevitably changes, and that unless Esperanto is held by its devotees to be immutable and indefectible it must in time become altered. The vocabulary and pronunciation of English have altered to a marked degree within the last century, and to a considerable extent within the last thirty or forty years. A language which sprang from the mind of Dr. Zamenhof, as Minerva sprang full armed from the head of Jove, cannot escape the lot of ordinary human speech. The subject has been very fully discussed in the JOURNAL from both sides, and we would say to any other disputants who may feel moved to enter the arena:

Claudite jam rivos pueri: sat prata biberunt.

VAGINITIS FROM WATER.

AN acute vulvo-vaginal discharge in an adult is a very compromising malady, but it is recognized that dirty linen and dirty habits may cause the infection of the subject quite independently of sexual relations, and it has long been known that the vulvo-vaginitis of children, a disease usually far more acute than simple leucorrhoea in the adult, is thus propagated. Recent researches appear to show that staphylococcus infection is sometimes conveyed by the water used for washing and for vaginal injections. Van de Velde made cultures from 9 cases of acute cervical metritis associated with colpitis and vulvitis, and on subsequently examining the well-water the patients had used for their ablutions detected the same species of blastomycetes as he had discovered in the pus. Dr. Boshower of Haarlem,[1] has recently published a similar case of much importance, as the patient might have been deeply compromised by her malady. He was consulted by a young lady, aged 19, for a very acute discharge with all the objective and subjective features of gonorrhoea. As far as could be made out there was no reason to suspect gonorrhoeal infection. Boshower submitted specimens of pus from this case to Dr. Havelaar, Director of the Municipal Laboratory of Haarlem. Great pains were taken to avoid all sources of error. The gonococcus could not be found. The pus contained in abundance the *Staphylococcus pyogenes albus*, which had the haemolytic properties of that species. Water taken with suitable precautions from the well used by the patient for washing yielded pure cultures of the same microbe. It was found that two younger sisters of the patient, both little children, had previously suffered from vulvo-vaginitis; and Mendes de Leon in 1907 reported instances of that malady in which there could be no doubt that this staphylococcus was the infecting germ. Boshower remarks that ten years ago Hofmeier taught that genital infection not due to gonorrhoea was not rarely observed in nulliparae, and adds that with the knowledge to which we have attained since 1898 we can indicate with great certainty the line of travel of these infections and not rarely make clear their cause.

[1] Infection Staphylococcique des Organes Génitaux. *Rev. de Gyn. et de Chir. Abdom*, vol. xii, September-October, 1908, p. 773.

OLD AGE PENSIONS IN GERMANY.

THE Hon. W. P. Reeves, formerly State Commissioner for New Zealand, who last year resigned that office to become Director of the London School of Economics and Political Science, delivered last Tuesday at the school a lecture on State-aided pensions for the poor. Germany, France, and Belgium, he said, afforded examples of contributory pensions, and Denmark, Australia, New Zealand, and the United Kingdom of limited free pensions. He expressed the opinion that all pension schemes in the future would belong to one or other class, since a system of free State universal pensions was not likely ever to be applied. The Belgian system of superannuation for the poor, provided by voluntary contributions with an added State donation, had encouraged thrift, but as it had yielded only an average pension of £3 a year the State had found it necessary to institute a system of free old age pensions for the utterly destitute. The greater part of the lecture was devoted to the system of compulsory insurance which has been in force in Germany for twenty-six years, and is applicable to men and single women earning less than £100 a year. Mr. Reeves pointed out that, as the funds were provided by equal contributions from employers and employed, the principle of the system was that of deferred wages, and it was a question whether thrift was encouraged by withholding 2 per cent. of wages. Professor Ashley had shown that of the 10,700,000 men insurable 8,857,000 were insured, and of the 5,800,000 women who were qualified to provide for pensions 4,524,000 were paying their contributions. The system provided for old age, sickness and accidents, and in 1907 nearly £30,000,000 was expended; of this £8,400,000 was expended in pensions to the aged and infirm. The State bore the cost of management, and added to every pension a bonus of £2 10s. a year. For the working of the system the wage-earners were divided into five grades: (1) Those who earned up to £17 10s. a year; (2) those who earned any sum between £17 10s. and £27 10s.; (3) those who earned between £27 10s. and £42 10s.; (4) those who earned between £42 10s. and £57; and (5) those who earned between £57 and £100. The lowest wage-earners paid seven-eighths of a penny a week for their old-age pension, and the highest wage-earners about 2½d. No special consideration was shown for a married man. The five grades of pensions were: (1) £5 10s. a year; (2) £7; (3) £8 10s.; (4) £10; and (5) £11 10s. If the labourer died after subscribing for 200 weeks his wife and children were entitled to receive what he had subscribed, but nothing more. The lot of the widows and orphans was one of the black features of the

system. A married woman could not qualify for an old-age pension. The amount of the weekly contribution was fixed for ten years. If the insurers, after having subscribed for not less than four years, broke down and were unable to earn wages, they were entitled to more generous treatment. If curable they were treated in State sanatoriums, and received temporary sickness pensions. If incurable they received a pension regulated by the number of years they had subscribed, and varying from a minimum of £5 16s. in the lowest grade for four years' subscriptions to £22 10s. in the highest grade for 50 years' subscriptions. The insurer began to pay his contributions at the age of 17, and for an old-age pension he had to subscribe 50 weeks a year for 24 years—1,200 weeks in all.

DEATH UNDER STOVAINE.

THE unfortunate incident of the death of an elderly patient under stovaine, injected subdurally to produce spinal anaesthesia for a necessary operation—the inquest on which is referred to on page 376—must apparently be added to the relatively very small number of fatal cases attributable to this valuable anaesthetic. The patient was 72 and a house painter, who, in addition to an enlarged prostate and its complications, had a degenerate heart and diseased lungs. The use of both chloroform and ether as general anaesthetics being contraindicated, and the safest of the known local analgesics was properly chosen, and sympathy is to be extended to Dr. MacCormac in the matter. No therapeutic agent capable of absolutely abolishing pain can, it is to be presumed, ever be absolutely safe. In regard to spinal analgesia, over 5,000 cases collected by one investigator show only five deaths. Mr. Barker has recorded a series of 300 cases, and Messrs. Spencer and Houghton, Mr. McGavin, and Dr. Mill Renton a series of 50 each without a single fatal result and with hardly an untoward symptom. Experience shows that patients who take general anaesthetics badly, including the aged and alcoholic, usually bear stovaine well, and the absence of shock after even serious operation has been remarkable. In regard to a possible fright factor it is of interest to recall that in the first case selected for the administration of chloroform in the Edinburgh Royal Infirmary the patient died on the table, immediately after the first incision. It is fortunate for the future of chloroform that, owing to the unavoidable absence of Simpson, the anaesthetic was not administered. It is the rule in operating under local anaesthesia that the field of operation should be screened from the patient, and the custom to distract meanwhile the patient's mind by engaging him in conversation. It is doubtless one of the drawbacks of the method, especially in the presence of heart weakness that the head must be kept raised in order to protect the medulla and its nerves from the influence of the drug. In view of the infrequency of ill effects after stovaine the present regrettable result may fairly be taken as an exception that proves the rule.

THE ARMY MEDICAL COLLEGE.

SIR ALFRED KEOGH, Director-General of the Royal Army Medical Corps, and the members of the Royal Army Medical College on Tuesday evening entertained at dinner Viscount Midleton, who, when as Mr. St. John Brodrick he was Secretary of State for War, founded the College. The chairman in proposing the toast of the guests, said that Lord Midleton had studied the subject of a medical service with an army in the field as it had not been studied since the days of Sidney Herbert. The College was established with the view of improving the early education of the army medical officer and of giving him the advanced and special education which he required at various stages of his career. The College was also designed to undertake research into the origin and spread of military diseases. Already the admissions to military hospitals had been diminished, the death-rate in the army lowered, invaliding lessened, and recruiting improved. Lord Midleton, in expressing his acknowledgement, said that the fierce light which now beats upon a campaign affected the medical service even more than the combatant services, for the patriotic restraint which held men back from criticizing soldiers for losing lives impelled them with double force to make free with doctors for not saving them; it was never realized that it was only in very recent campaigns that the medical department had been allowed a say at all on anything but the actual care of sick and wounded. "Prevention is "better than cure," and for every wounded man the medical officer could heal he could save a dozen lives by attending to the sanitation of the hospital, by proper selection of the sites for camps, and by the control of drinking water. The seven years which had elapsed since the South African war had been most important in the medical history of the British army; the number of medical officers had increased by 40 per cent., while the qualified candidates had since 1902 been double the number of commissions vacant. The College gave about six months of the most modern professional training to officers after seven years' service, and the Royal Army Medical Corps was no longer cut off from the companionship of the civil profession. In conclusion, Lord Midleton said that one of the causes which had spoiled every modern effort to reorganize the army was the want of continuity in the views of successive administrators. He urged the medical service of the army to avoid this pitfall.

A CIRCULATING LIBRARY OF HYGIENE.

DURING the last four years the members of women's clubs of Massachusetts have had in circulation a library of books on matters relating to health and hygiene. The result has been that a great public interest in personal and public health, and especially in the suppression of tuberculosis, has been aroused. It is believed, says the *Medical Record*, that no other one agent has had a more happy influence upon the public mind, resulting in legislative appropriations for the care of the tuberculous, the establishment of local antituberculosis and visiting nursing associations, and the foundation of day camps. It is proposed now to extend the library scheme to the country at large, and the General Federation of Women's Clubs will recommend that such a library be bought and circulated by the clubs.

PLAGUE IN THE AZORES.

THE last issue of the *Oporto Hospital Gazette* contains a lengthy account of plague conditions in the Azores, by Professor Sousa, head of the Bacteriological Laboratory in Oporto, who was recently sent out in charge of the medical mission to combat the outbreak. His letter is dated December 31st. The first task has been to divide the island of Terceira (to which apparently the plague is limited) into six districts, each under the charge of a separate staff and assistants. Disinfection brigades were also organized, special attention being directed to the parish of Sta. Barbara, the focus of the formidable outbreak of the pneumonic form of the disease. Rat brigades have been started, 40 reis (about 2d.) being paid for each rat, the animals being dropped into petroleum after being killed in order to avoid flea infection. The disease seems to have begun in June

and to have been especially marked in the Angra and Prai da Victoria districts. In the former, of 85 cases there were 50 deaths, and in the latter, of 107 cases 52 deaths. In Angra there were 40 cases of the pneumonic or septicaemic type, all of which proved fatal. The rats were found affected in all the parishes whence specimens had been received, and cats had also been found with abundant bacilli, in some cases, indeed, so abundant as to be spoken of as "indescribable," which the phototype given in illustration fully bears out. Professor Sousa, however, does not seem to believe in the affection of the poultry, and describes the experiments that he made to infect them, but they were too restricted to be of much value. The Hong Kong experiments carried out by Dr. Simpson in 1902, apart from other evidence, conclusively shows that fowls can not only be affected artificially, but became naturally affected by the disease during an epidemic.

WOUNDS OF THE URETER IN CHILDBIRTH.

THE researches and experiences of Mr. Henry Morris, Dr. Howard Kelly, Dr. Fenger, and other contemporary writers have greatly advanced the surgery of the ureter, but an injury to that duct, not rare in the course of an abdomino-pelvic operation, is always a very serious complication. In childbirth it is much less frequent; still it is not unknown, and the after-consequences are distressing and ultimately dangerous, for urinary fistula with incontinence of urine is nearly always followed in these cases by destructive suppuration of the kidney. An interesting discussion by leading French authorities recently followed the reading by M. Pozzi of a report of an instance of the complication in question.[1] A woman, aged 35, consulted him because urine had come away through the vagina for nine months, beginning after a lingering labour. The cervix had been rigid, the membranes ruptured prematurely, and complete uterine inertia set in. On the fifth day the patient's doctor introduced the forceps after using Tarnier's dilator, but the cervix retracted as the blades of the forceps were being applied and manual dilatation proved a failure. Then some incisions were made in the cervix. Within a few days urine was observed escaping from the vagina, and the complication was ascribed to vesico-vaginal fistula resulting from an extension, during the extraction of the fetus, of one of the incisions made in the cervix. The patient was kept under observation, and it was noted that occasionally the urine ceased to escape from the vagina and that then she complained of sharp pains running from the right hypochondrium to the iliac fossa, accompanied occasionally by fever. M. Pozzi found wide laceration of both commissures of the cervix, especially on the right where the tear extended into a cicatrix occupying the corresponding vaginal fornix. No fistula, however, could be detected in the vagina, and nothing escaped from the uterus when fluids were injected into the bladder, yet the vagina was constantly moistened by urine. The right kidney was tender on palpation. Luys introduced the cystoscope and detected partial, not complete, obstruction of the right ureter a centimetre above its vesical orifice. As the left kidney and its duct were proved to be quite sound, Pozzi removed the right kidney. That organ was found to be the seat of hydro-pyonephrosis and its secreting tissue was almost destroyed. Four months later the patient reported herself as in excellent health and free from all urinary complications. Obstetricians, remarked Pozzi, believed that ureteral fistulae after childbirth were usually the result of gangrene of the ureter by compression, especially in lingering labours, rarely to damage by instruments. The attendant at this labour, on the other hand, believed that a laceration beginning from one of the incisions which he had made, had really extended into the ureter. Pinard, in discussing the case, expressed doubt as to whether a laceration of the kind reported could involve the ureter; it would more probably extend upwards into the uterus. He considered forced dilatation and incisions unjustifiable. Under the circumstances, in this case the uterus should have been opened from above. Champetier de Ribes related an instance of uretero-vaginal fistula after basiotripsy. On the seventh day, probably after the separation of a slough, urine began to escape from the vagina; the fistula was closed by operation. Hartmann agreed with Pozzi that the kidney should be removed, as transplantation of the ureter above the stricture did not always bring about restoration of the functions of the kidney. Routier admitted that, in two cases in which he had transplanted the ureter, he found afterwards that that duct closed again, and the kidney underwent atrophy. In two cases of uretero-vaginal fistula spontaneous cure occurred, but in both the catheter proved that the ureter on the side on which the fistula had developed was strictured. Schwartz, who had removed a suppurating kidney two years after a uretero-vaginal fistula had developed as the result of damage during the extirpation of a big fibroid, said that the patient was doing very well seven years after the nephrectomy. Doléris, concluding the discussion, agreed with Pozzi that lateral incisions made in the cervix with scissors or scalpels might involve damage to the ureter. The duct was safe only when Dührssen's systematic incisions were made, as then it retreated before the knife.

[1] *Revue de Gynéc. et de Chir. Abd.*, March-April, 1908, p. 364.

PROFESSOR RAMON Y CAJAL, of Madrid, the famous anatomist and one of the winners of the Nobel Prize, has been created a Senator of Spain.

MR. SINCLAIR WHITE, Surgeon to the Royal Infirmary Sheffield, has been elected a corresponding member of the Surgical Society of Paris.

THE Hunterian oration before the Royal College of Surgeons of England will be delivered by the President, Mr. Henry Morris, on Monday, February 15th, at 4 p.m. Fellows and Members desiring to be present must apply to the Secretary for cards.

THE International Opium Commission was opened at Shanghai on February 1st by the Viceroy, who had a special Imperial mandate for the purpose. Subsequently the Commission unanimously elected Bishop Brent President, and Mr. Carey, Commissioner of Customs, and M. Gieter, interpreter to the French Consulate, secretaries. It was resolved that the official language should be English, the secretaries undertaking to make summaries of speeches delivered in other languages.

AT a meeting of the Clinical Section of the Royal Society of Medicine on Friday next Mr. Butlin will, at 8.30 p.m., exhibit his collection of drawings of early carcinoma of the tongue and of conditions which may be mistaken for it, and will speak of the results of operations which have been practised in the cases exhibited. Microscopic sections of the cases will be on view. Messrs. Arthur Barker, W. G. Spencer, and G. L. Cheatle will take part in the discussion of the subject.

England and Wales.

[From our Special Correspondents.]

LIVERPOOL.

The Royal Infirmary.

At the annual meeting of the Royal Infirmary allusion was made to several changes in the staff which have taken place during the past year. These were the death of Mr. E. R. Bickersteth, senior consulting surgeon, the resignation of Mr. George G. Hamilton and the appointment of Mr. W. Thelwall Thomas as surgeon in his place, and the election of Mr. F. A. G. Jeans as assistant surgeon. Dr. R. J. M. Buchanan, having been seven years assistant physician, has, according to the laws of the institution, become entitled to be styled "physician to out-patients." The financial state of the institution gives ground to some anxiety. The yearly expenses continue to increase, but the income does not increase in the same proportion. The cost of the *x*-ray department alone had been £500 during the year. When the present building was opened eighteen years ago a maintenance fund of £28,000 was liberally subscribed, and was expected to last for ten years. As a matter of fact, by judicious management and economy it is not yet all expended, and there is still one year's contribution remaining to be transferred to the general account. An urgent appeal is made for a fresh guarantee fund of £25,000 to enable the work to go on in the future with the same success as in the past. Apart from ordinary routine the most important step the committee has taken during the year has been the definite adoption of plans for a new out-patient department. Towards the cost of this, £10,000 has been given by the family of the late Mr. E. R. Bickersteth in memory of the deceased eminent surgeon, and this sum has been supplemented by another substantial and several smaller sums. It is intended to make an appeal to the citizens to assist in its maintenance. It is expected that the foundation stone will be laid in the course of the next few months, and that the work will be prosecuted without any unnecessary delay.

The Medical Institution.

At the annual meeting of the Medical Institution, on the recommendation of the council, an addition to the laws was passed by which practitioners of homoeopathy who are ineligible as members of the institution shall also be ineligible as visitors. The membership of the society has largely increased of recent years, and the extension and decoration of the buildings has been greatly appreciated. Through the liberality of the president, Mr. T. H. Bickerton, a convenient room has been comfortably fitted up for private study and research in the library.

Liverpool School of Tropical Medicine.

Sir Alfred Jones, chairman of the Liverpool School of Tropical Medicine, recently entertained a number of pupils of the school and friends of the movement at dinner. He delivered an address in which he recalled the fact that the Liverpool school came into being in 1898, and was formally opened on April 21st, 1899, by that greatest of scientists, their much-loved friend and counsellor, Lord Lister. The university lent its indispensable aid, as did the Royal Southern Hospital. In the short space of ten years the school had spent no less than some £75,000 on the study of tropical medicine. With this term the school had started on a new system of instruction; three weeks had been added to the ten weeks' period of study, and the university had decided to give its diploma in tropical medicine only to students who had undergone this course of thirteen weeks. Owing to the lengthened term it would not be possible to give more than two such courses every year, and the courses had therefore been fixed to begin on January 6th and September 15th. The corresponding examinations for the diploma would be held about April 5th and December 13th respectively. In addition to these two full courses there would be a short course lasting only one month, for practical instruction in tropical pathology and medical entomology, to be given from June 1st to 29th each year. It was hoped that this would be of the greatest utility to medical men returning on short leave to England, as it would enable them to acquire the practical technique of microscopic and similar work, which had been much desired by many of them. After the four weeks' short course, a class examination would be held, and a certificate would be issued for the first four weeks of the full Lent and autumn courses. The career of the school had been a brilliant one; it had numbered amongst its investigators no less than thirty intensely keen young medical men, drawn from the British Isles, the Colonies, and foreign countries. Most of these investigators had taken part in twenty-one expeditions to tropical countries—some had lost their lives in the enterprise, but all had added materially to their knowledge of tropical diseases, and had been the means of bringing about a revolution in the health conditions in the tropics. They had, in addition, trained 255 medical men and others to fit them to carry out effectively their work in our tropical possessions. Not only had the study of tropical diseases conferred an immense benefit upon the science of medicine, but it had given new and undreamt-of advantages to commerce, civilization, and to administration in tropical countries. They could point to Ismailia in Egypt, Klang, Port Swettenham, Hong Kong, Marathon, and many other places where malaria, if not eradicated, was fast disappearing. Only recently Dr. Johnston, who had thirty years' experience in Jamaica, visited the Liverpool school to bear testimony to the value of their teaching in the prevention of malaria. In Dr. Johnston's own experience it had reduced the mortality amongst the native soldiers of the West Indian regiments serving on the West Coast of Africa some 75 per cent. The preventive measures were not only of use to white trading officials and officers, but also of immense advantage to the natives themselves. Similar eloquent testimony had been recently furnished by Sir Henry Blake and by many other administrators, medical men, and travellers returning from the tropics. Similarly Rio, Santos, New Orleans, Havana, and the Philippines had been rendered as safe and as secure as any modern well-governed province or city in Europe. The construction of the Panama Canal was no longer a health problem; the previously insurmountable barrier of disease had been removed. The work had increased by leaps and bounds, and unless more financial support was forthcoming their work would have to be very seriously curtailed.

MANCHESTER AND DISTRICT.

Women Doctors and the Royal Infirmary.

A considerable amount of excitement has been caused among women doctors and medical students in Manchester by a letter from Judge Parry in the *Manchester Guardian* on the subject of the appointment of women resident medical officers at the new infirmary. No one can ever charge Judge Parry with wrapping up his convictions on any subject, and he leaves us in no doubt as to his opinions on this point. He admits that something might be said for appointing a woman doctor for the women's and children's wards, but considers the suggestion to appoint a woman as a general resident medical officer to be "indefensible." He continues:

> In my view we have no right to impose on the sick poor a class of medical treatment that we should consider unsuitable or undesirable for ourselves. The tradition of the infirmary has always been to give sick poor the very best medical attention and comfort that can be obtained, and the best measure of that is to be found in what rich people, who are free to choose for themselves, do actually choose. For the infirmary to appoint a general resident woman doctor would be to exploit the infirmary as a charity in the interest of a particular class of medical education. I feel sure that many subscribers would resent that course.

The Chairman of the Infirmary Board has also thought it necessary to correct a wrong interpretation which the press and the women's deputation put on his previous remarks. It had been assumed that the board had really decided in favour of the appointment of women, and that the only obstacle that prevented immediate action was the want of accommodation. He thought he had stated with sufficient clearness that the appointment of women as resident medical officers had *not* been fully considered by the board, and that no conclusion had been come to on

account of the difficulty of providing accommodation. He adds that to assume that the accommodation required would only be one small bedroom and one sitting-room is to take a very superficial view of the matter. In reality the change might involve additional buildings and necessitate rearrangement of and additions to the domestic staff and the reorganization of the work of the infirmary. The board could not at present undertake to deal with such a far-reaching question. Further, he says that though the educational facilities which the hospital affords are of great importance, the primary object of the charity is the welfare of the patients, and anything likely to interrupt the general work of the hospital is to be avoided.

THE PUBLIC HEALTH LABORATORY.

The public health laboratory associated with the Manchester University is at present conducted in York Place, some distance away from the university. Its work is concerned not only with the training of medical students under Professor Delépine, but also is associated with the wider interests of the public. As director of the laboratory, Professor Delépine has during the past year been engaged on an exhaustive report on the prevention of tuberculosis from tuberculous milk. As far back as 1892 he drew attention to the dangers of an infected milk supply, and the report, which is being compiled at the request of the Local Government Board, will contain something like a quarter of a million data that have been examined and correlated. Investigations, too, have been made at the instance of the Manchester corporation as to the effect on health of air impregnated with sewer gas. The value of the various types of mechanical filters for the treatment of drinking water has also been investigated. A special inquiry is being made by Drs. Lea and Sidebotham as to the reliability of bacteriological diagnosis in the detection of sources of puerperal fever.

Of late years there has been a constant and increasing demand for special and routine investigations which can only be undertaken at a properly equipped laboratory, and this, together with the regular teaching requirements, have made the present accommodation far too small. There are now fifty-five students using the laboratory, and the success of the teaching is shown by the positions which past students have obtained, there being now a considerable number of medical officers of health in various parts of the country who have received their training in this laboratory. At present the building is in debt to the extent of over £4,000, and the constant demand for further connected researches can hardly be met without a substantial endowment. At present the fees obtained for the work of the staff are the chief sources of income, and are not sufficient to support it adequately.

WEST YORKSHIRE.

OPEN-AIR SCHOOL TREATMENT IN BRADFORD.

THE open-air school established experimentally last year at Thackley by the Bradford Education Committee is the subject of an interesting report by Dr. Crowley, the Medical Superintendent. Physically, all the forty children were unsatisfactory in one way or another. The curriculum included ordinary school work, with outdoor lessons; nature study and intervals for play and rest; three meals a day were given. The rest consisted of an hour's sleep in deck chairs, and both shower and slipper baths were provided. Physical exercises formed an important part of the curriculum. The results of the school were shown in an improvement in the general appearance and carriage of the children, increased weight and chest measurement, and improved condition of the blood, as shown by the amount of haemoglobin present. The cost of maintaining a school of this description is, of course, greater than under ordinary conditions, but Dr. Crowley looks on this class of school as part of the great movement in preventive medicine, and must necessarily lead to the greater efficiency of the individual, thus returning the capital used in an indirect manner. The report is convincing as to the advantages to these poor little weaklings; but it appears that something further will soon have to be done in this direction. Why are these weaklings here at all? If the municipality is compelled to perpetuate an undesirable factor which it has not the power at present to prevent, is it not necessary that some action should be taken in the future in this direction? A report on the physical condition of the parents of these children would be of assistance, and perhaps Dr. Crowley will be able to undertake such an investigation. Where it becomes the duty of the municipality to see that delicate infants are reared in the most hygienic manner possible, should it not also have some say in the antenatal or anteconception condition of its future protégés?

BIRMINGHAM.

EPIDEMIC OF MEASLES.

THE report of the medical officer of health (Dr. Robertson) for last week indicates that a somewhat serious epidemic of measles has broken out in various parts of the city. Measles has assumed just now a greater degree of prevalence than for some years past. Last week there were 20 deaths from measles, as compared with 15 in the preceding week, and 8 during the week ending January 9th. Twenty deaths is an exceptionally large number, and there have not been so many for two years. Most of the deaths were due to the fact that the parents do not take sufficient care of their children when they are afflicted with this disease.

WALES.

WEST WALES SANATORIUM.

AT the annual meeting at Carmarthen of the governors of the West Wales Sanatorium, opened last summer at Alltymynydd, the Chairman deplored the absence, through indisposition, of Mrs. Davies-Evans, wife of the Lord-Lieutenant of Cardiganshire, who had not only taken the leading part in the sanatorium movement from its inception, but had been the prime mover of the presentations which they would shortly make to gentlemen who had held office in connexion with the executive. He particularly referred to Dr. Douglas Reid of Tenby, the first honorary secretary, Mr. P. J. Wheldon (Carmarthen), the treasurer, and Dr. Bowen Jones, another honorary secretary. To Dr. Reid, who was the pioneer of the movement, he handed a replica of the Cromwellian cup; a silver salver was presented to Mr. Wheldon, and a silver inkstand to Dr. Bowen Jones. Dr. Reid, in reply, recalled the seven years' work which culminated in the erection of the sanatorium. He commented on the practical solicitude of the late Lady Drummond, who had given a large sum of money, without which the sanatorium could not have been built. As to the clerical work, he said he had 3,500 letters in his possession; all of them had been answered, some of them twice and thrice. Altogether about 10,000 letters had passed through his hands. Mr. Wheldon showed how ignorance and prejudice in regard to the suppression of tuberculosis had been overcome, and Dr. Bowen Jones paid a high compliment to Mr. Wheldon, who, he said, had done a great deal of secretarial work for him. Mr. Parry Edwards was also presented with a silver inkstand, in acknowledgement of aid rendered to Mr. Wheldon in the financial department. "Profound gratitude and satisfaction" was expressed by the governors to Princess Christian for her gracious message intimating her desire to become the patroness of the West Wales Sanatorium, and with acclamation her name was so enrolled. Earl Cawdor, was elected president, and Mr. D. Davies, M.P., Llandinam, Sir James Drummond and Colonel Davies-Evans were appointed vice-presidents, Mr. Wheldon was re-elected treasurer, and Captain Harries, of Bryntowy, consented to become the honorary secretary, the consideration of the appointment of a paid secretary being postponed. The treasurer, in his annual report, which was adopted, stated that the receipts for the building fund came to £8,367 5s. 2d.; £1,000, lent by Sir James Drummond, had been repaid; and about £415 was due to the contractor and architect. Thus there was an adverse balance on the building side of the account. The furnishing account, including £500 from Mr. David Davies, M.P., came to between £800 and £900, and there

was a deficit of £27. The maintenance account, which had been in existence for four or five years, contained a separate account made by H.R.H. Princess Christian. On this there was a balance of £32 12s. 9d. The auditor had declared that £1,672 3s. 5d. had been collected for the maintenance fund for 1908-9. Colonel Davies-Evans observed that there was £331 0s. 3d. in hand on account of the memorial account. The honorary secretary (Dr. Bowen Jones), in his annual report, expressed warm thanks to Mr. D. Davies, M.P., for his generous contribution of £500 to the furnishing of the institution, and to Llanelly subscribers for a contribution of £294 9s. to the same fund, in addition to the gift of the turret clock.

The Medical Superintendent (Dr. Basil Adams) submitted the first annual report, and stated that since the formal opening of the sanatorium, by Princess Christian on July 20th, 1908, additions had been made to the staff, bringing the total to ten. On August 25th the first patients—four men and one woman—entered the sanatorium, and by October 3rd all the male beds (12) and half the female beds (5) were occupied. On December 31st 20 patients were undergoing treatment. Up to date 30 had been admitted (12 from Carmarthenshire, 11 from Pembrokeshire, and 7 from Cardiganshire) and 10 discharged. Of the discharged, 2 were fit for work, to which they returned and were now working; 2 were fit, and were looking for suitable work; 4 were continuing treatment (one in another sanatorium); and 2 proved to be unsuitable cases. With one or two exceptions, the cases admitted were not of the type that had been expected, as they did not come within the category of early cases. The most suitable had to be picked out of a large number of applicants, over 30 unsuitable cases having been examined and refused. It was hoped that all interested in the sanatorium's welfare would not advise cases of several years' standing to apply for admission, or that class which sought treatment as "a last resort" or "their only hope." That would only lead to much trouble for the authorities and disappointment for the would-be patients. Apart from the 2 unsuitable cases, all the patients had made satisfactory progress. The Chairman spoke in commendatory terms of the splendid work of the medical superintendent. Mr. Wheldon hoped that some generous benefactor would provide a pony and trap and a microscope.

Ireland.

[From our Special Correspondent.]

Alcoholism and the Poor Law.

Dr. Fulton, one of the visiting medical officers to the Belfast Poor-law Infirmary, recently made a report as to the number of alcoholic cases admitted to the infirmary, the expense necessitated, and the encouragement thus given to the manufacture of that class of pauper; many of the cases were said to be well able to pay. The statistics have been sharply criticized, and at a meeting of the board on January 26th Dr. Fulton made an explanatory report which considerably modified the impression given by his former one. There were 78 cases of delirium tremens out of the 490 alcoholic cases mentioned during 1908; the sum £3 12s. formerly mentioned as the cost per week was not the actual cost, but given as a guide to guardians as to what they should charge if they had power to exceed the 6s. 5d. Many of the cases required hospital treatment, which they could not get elsewhere, and their lives had been saved by admission to the infirmary.

The Vice-Chancellorship of the National University.

At a meeting of the Senate held this week, the election of a vice-chancellor was considered. It is announced that two candidates were proposed—Sir Christopher Nixon, Bart., and Dr. Sigerson. The former is Vice-Chancellor of the Royal University, and is very well known. Dr. Sigerson is devoted to the cultivation of Celtic literature. He is Professor of Biology in the Catholic University Medical School, and Fellow in the Royal University. The Senate was unable to come to a decision, and the election was postponed to a future day.

Irish in the National University.

The Gaelic Leaguers, who are intent upon having Irish made compulsory in the new National University, have not received the bishops' views with any cordiality. The so-called West Briton character of some of the prelates is openly discussed and not in flattering words. The leaguers point out that the bishops admit that the matter is one for fair discussion, and they make liberal interpretation of the words. The Dublin Corporation on Monday last had the following motion under consideration:

> That the present being a grave epoch in the native language movement, fraught with momentous consequences to national education, in its primary, secondary, and university stages, and to the University of Ireland, in the position it should occupy, as a reviving centre of national thought, in the coming restoration of the Irish language, the Corporation of Dublin therefore resolves: (1) That the time has arrived for the expression of the will of the Irish people upon this supreme racial question by a demonstration of national magnitude in the City of Dublin. (2) That in order that such demonstration should have national dignity all creeds and classes should participate. (3) That to accomplish these objects, a conference, representative of all phases of opinion throughout the country, and of public bodies, should, in the opinion of this corporation, be immediately convened by the Gaelic League.

Dr. McWalter (Alderman) proposed as an amendment:

> That the corporation has absolute confidence that the (Catholic) Archbishop of Dublin, as Chancellor of the National University, will take all necessary steps for the safeguarding of the Irish language in that university.

But the temper of the members is indicated by the rejection of the amendment, which only received 4 votes against 38 for the motion.

What is called the Students' United Association sent a deputation to a meeting of the United Trades Council on Monday night on the same subject. It was stated that they wanted to put some of the spirit of the students of other countries into those of Ireland. The council was asked to co-operate in a torchlight procession after a meeting in the Mansion House on Monday night next. And the request was agreed to.

The movement, noisy but not large, spreads through the country, and the Senate of the university is rather to be pitied in the face of this crusade. It is known that the members are much divided in their views, but the day must come when they will have to answer the question, "Under which king?" A sedate university finds itself suddenly in the midst of a great political storm, and it will need considerable astuteness to steer it through its troubles. But the feeling grows that the attacking forces are losing strength, and that in the end the bishops will be victorious.

Research Defence Society.

A branch of the Research Defence Society has, as was stated in the Journal of January 30th, been founded in Dublin. The inaugural meeting was held in the Lecture Theatre of the Royal Dublin Society on January 27th. Sir John G. Nutting, Bart., D.L., who took the chair in the unavoidable absence of the president of the society, the Earl of Cromer, said the fact that before the branch was actually formed over two hundred persons of every class and profession in Dublin, in addition to a large number of medical men, had intimated their intention of joining, showed what a widespread feeling existed in Ireland in reference to scientific research. People were antivivisectionists because they were either uninformed or misinformed. The Very Rev. the Dean of St. Patrick's proposed the first resolution as follows:

> That a Dublin branch of the Research Defence Society be, and is hereby, established.

He said it was humiliating that the advocates of science should be so hampered in their efforts, and so slandered as to their motives, that a society of that sort should be needed among those who benefited every day by their labours in the cause of humanity. He regarded the society exactly as he regarded the Society for the Prevention of

Cruelty to Children. The society had nothing at all to conceal, and it had every motive to court and provide the fullest inquiry. After giving instances of the great value to humanity of results obtained by experiments on animals, he said there were a few who would say that it was altogether wrong to experiment on animals, however painless the experiment might be. What lay behind that position was this: That the life and the happiness of the lower animals were to be weighed exactly in the same scales as the life and the happiness of mankind; that they had rights to equal treatment. Those who used that argument did not understand what human life meant, and were led away by false sentimentalism which prevented them from realizing the vast amount of suffering beyond their immediate ken. Count Plunkett, in seconding the motion, said that all they asked was that men of science might be allowed to strike at the roots of much human suffering, and, for this noble end, to experiment on the lower creation. No matter how they theorized, they could not put man on a level with the lower creation. The motion was passed, with two dissentients. Mr. Stephen Paget read a letter from Lord Cromer in which, after expressing his regret at being unable to attend the meeting, he went on to say that all interested in scientific research must attach the greatest importance to the action now being taken in Dublin, for which they were greatly indebted to the very able and energetic assistance afforded by Sir Henry Swanzy. Mr. Paget then spoke of the advances which the society had already made in England, and mentioned that, in addition, that example was being actively followed in America. Of the Antivivisection Society, he said, sensible people were sick unto death. They had flooded the country far and wide with literature which for badness was without a parallel. Its disseminators seemed to stand alone and unrivalled in the knowledge of how to be cruel. Dr. Horne, President of the Royal College of Physicians, moved:

> That the sincere thanks of the Dublin Branch of the Research Defence Society are hereby given to the Right Hon. the Earl of Cromer, President of the Society, for his kind message conveyed through Mr. Stephen Paget.

After congratulating Mr. Paget on having secured Lord Cromer as the first president of the society, and referring to the work done in the laboratories of Ireland, he said it seemed a very curious fact that the State imposed the greatest difficulties possible upon men of high culture before permitting them to perform a single experiment. The precautions taken in this matter were wise enough in one sense, but when they looked around the country and saw what was going on in the rural parts, they found swineherds and cowherds and stud grooms performing the most serious operations on animals without any check or any inspection whatsoever. Mr. T. W. Russell, M.P., seconded the resolution. He said every one in public life was simply deluged at present with the literature of the antivivisectionists. Mr. Paget was quite right when he declared that they wholly misrepresented the position in the eyes of the public. The real issue was whether curative science was to be an observational science purely or an experimental science as well. The resolution was carried, there being only one dissentient. The Rev. Father Finlay, S.J., moved:

> That the following do form the Executive Committee of the Dublin Branch of the Research Defence Society for the ensuing year, with power to appoint one or more honorary secretaries, who shall be or shall become members of the Committee: Dr. Coleman, C.M.G., Mrs. Francis Dixon, Dr. Frank Dunne, Dr. J. Magee Finny (President of the Royal Academy of Medicine), Mr. Jacob Geoghegan, Dr. Andrew Horne (President of the Royal College of Physicians), Mr. John Lentaigne (President of the Royal College of Surgeons), Dr. Lumsden, Professor Mettam, Miss Isabella Mulvany, LL.D., Professor Edmond J. McWeeney, Count Plunkett, Mr. George Prescott, Dr. Scharff, Mr. L. Edward Steele, Sir Henry R. Swanzy, and Professor W. H. Thompson.

He remarked that the type of mind which made its possessor shriek to think of the supposed fearsome cruelties from which he received his antitoxin, and kept him blissfully indifferent as to all that happened where his beef tea came from, furnished a pretty nut to crack for psychologists. Mr. Blood, K.C., seconded the resolution, which was carried without dissent.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

SCOTTISH POOR-LAW MEDICAL OFFICERS' ASSOCIATION.

THE annual meeting of this association held in Glasgow on January 29th was well attended, and the occasion was taken to present to Dr. Matthew Martin, the treasurer, a very fine gold watch with a suitable inscription as some recognition of the valuable services he has rendered to the association since its formation. The annual report, which was adopted, stated that during the past year contra-advertising had not been so frequently required as in previous years. The secretary, Dr. W. L. Muir, 1, Seton Terrace, Glasgow, had been able to give full particulars to applicants for appointments in connexion with a number of parishes, and had given advice in many matters of difficulty, one of a somewhat novel kind being an incident in which the parish council professed to be unable to pay the medical officer's salary on account of want of money. Attention was called to the opposition of the Government to an amendment proposed by Mr. Wason and Mr. Cross in the House of Commons to add to the bill to amend the Local Government (Scotland) Act a clause to the effect that medical officers should not be dismissed from their appointment unless by or with the consent of the Local Government Board. Mr. Wason, however, had promised to reintroduce the Parochial Medical Officers (Scotland) Bill, which did not reach a second reading during last session. The financial report showed a satisfactory balance in hand.

THE LATE DR. ARGYLL ROBERTSON.

An Indian paper reports that by special request the body of the late Dr. Argyll Robertson was cremated on the banks of the river Gondli, the funeral service being read by the Rev. G. S. Stevenson. The ceremony was deeply impressive. According to ancient custom no Hindu Rajah can take part in a funeral procession, nor wear a black or white turban as a sign of mourning, nor do the ladies of a princely family go to the burning ghat, but all these ancient customs were broken by the Thakur Sahib and his family out of friendship for the distinguished surgeon. Not only so, but at the end of the funeral service the Thakur Sahib himself kindled the funeral pyre of his gurn (teacher) and friend. Hindus and Mussulmans united in closing their shops as a mark of respect to the deceased, and in sending messages of condolence to Mrs. Robertson.

PROFESSOR CHIENE.

Owing to indisposition, Professor Chiene has been allowed three months' leave of absence by the University Court. His work in the chair of systematic surgery is being done by Mr. David Wallace, while his work in the Royal Infirmary wards has been undertaken by Mr. Alexis Thomson.

PROFESSOR CAIRD.

The Cap and Gown Club—the youngest of the social clubs of Edinburgh—had as its guest on Saturday evening, January 30th, Professor F. M. Caird, on his promotion to the Chair of Clinical Surgery in the University of Edinburgh. There was a large attendance.

COLINTON MAINS HOSPITAL, EDINBURGH.

The meeting of the Public Health Committee of Edinburgh Town Council on February 2nd had before it an extract from a report by Dr. Dittmar, the Medical Inspector of the Local Government Board in Scotland, who had visited the hospital on January 18th and 19th. The extract is in these terms:

> So far as I could judge the administration is excellent. I would sum up my general impression of the hospital in all its parts as being by far the finest and best adapted for its purpose that I have ever seen. I do not think that Colinton Mains Hospital could be materially improved on in structure or general arrangement.

South Africa.

PERSONAL HYGIENE AND PUBLIC HEALTH.

DR. WILFRED WATKINS-PITCHFORD'S presidential address to the Public Health Section of the South African Medical Congress was conceived in a thoroughly progressive spirit. He emphasized the point that municipal hygiene should not have only a negative side. It should aim not only at the prevention of disease, but at the provision of conditions in which good health can be attained and maintained by the whole community. "It should be as much a duty," he said, "to provide gardens and playgrounds as to insist on the proper ventilation of dwellings and the absence of overcrowding; the water should be not only free from dangerous contamination, but should be provided in quantities sufficient for the amplest cleanliness; food should not only be unadulterated, but should be intrinsically good; not only should vice and crime be suppressed, but a wholesome morality should be actively fostered." Perhaps it is owing to the spread of this same spirit that we now hear less of the term "preventive medicine" as a synonym for "public health administration."

In considering more particularly the problems of hygiene as applied to modern South Africa, Dr. Watkins-Pitchford enumerated as special features in the South African environment:

> The mixed character of the population, the generally low standard of education, the comparatively undeveloped condition of agriculture and forestry, the high altitude of some of the more important parts of the country, the absence of large bodies of water, the heat of summer, the heaviness of the rain storms during certain seasons, and the dryness of the atmosphere and prevalence of hot winds and dust storms at other seasons.

Perhaps the most serious of these conditions is the absence of large bodies of water, combined with the character of the rainfall, which of course makes it particularly difficult to conserve. This involves an inadequate water supply in a climate where a particularly abundant one is almost an essential of health, and renders water carriage of sewage difficult or impossible. Dr. Watkins-Pitchford estimated that the minimum daily supply should be 150 gallons a head in South African communities, and for the provision of this he advocates the formation of lakes in the upland districts as the highest statesmanship. After dealing briefly with a number of matters in which public health administration in all countries is usually carried on in the same way, he made some very interesting comments on the personal habits of the people themselves, and especially the want of adaptability of the European colonists in such matters as dress and dwellings. It seems strange that in South Africa British conservatism should defeat common sense and the costumes suitable for the climate of London or Glasgow should persist in the streets of Johannesburg or Capetown, or that houses in a subtropical climate should be constructed of inferior materials and roofed with galvanized iron. Dr. Watkins-Pitchford suggests that the latter material should be heavily taxed, not only with a view to encouraging the home manufacture of roofing tiles, but also to ensure a healthier type of dwelling. He further advocates the construction of houses with basement stories, that is, with several rooms partly below the level of the ground, and with flat roofs. He points out that many houses on the shores of the Persian Gulf are so built; the basement rooms provide a cool refuge during dust-storms and hot winds, while at other times the family can enjoy an outdoor existence on the flat roof. Altogether Dr. Watkins-Pitchford is to be congratulated on an exceptionally interesting and suggestive address.

THE Local Government Board in England has issued a circular to local authorities calling attention to the Local Authorities (Admission of the Press to Meetings) Act, 1908, which gives to duly accredited representatives of newspapers and news agencies the right to attend the meeting of any local body which has the power to make a rate. The Act reserves to a majority of the authority at any meeting the power of temporarily excluding representatives if such exclusion be deemed desirable in the public interest.

Special Correspondence.

PARIS.

Académie de Médecine: Prophylaxis of Phlebitis and Embolism.—Election to Chairs in the Faculty of Medicine.—The Recent Disturbances in the Latin Quarter.—Society for the Study of Radiations.

AT a recent meeting of the Académie de Médecine Professor Chantemesse communicated the results of a research on the prevention of thrombosis and embolism by the modification of the patient's blood. It has long been known that under pathological conditions the coagulability of blood may be increased or diminished. Coagulation is due to a diastase—the fibrin ferment—whose action is helped by calcium salts and prevented by citrates, oxalates, and fluorides. Wright first proposed the application of these chemical methods in the human subject. The clinician found that other factors played an important part in intravascular coagulation, that is, the general and more particularly the local slowing down of the circulation, and the presence in the wall of the vein of microbes provoking coagulation. Professor Chantemesse laid stress on a third cause, holding that all conditions accompanied by a great destruction of blood slowly created in the organism a disposition to spontaneous defence, which to check the loss of blood increased its intravenous coagulability. Thus in typhoid fever or menorrhagia coagulability of the blood was spontaneously increased; and when contributory circumstances, such as slowing the circulation or surgical ligature, ensued, thrombus was formed or phlebitis occurred, and occasionally embolism—an accident particularly frequent in patients after operation for fibroma. Examination of the coagulability of the blood in typhoid fever showed that on the eve of haemorrhages the coagulability fell greatly, and that it rose above normal when a phlebitis occurred. In a special form of spontaneous phlebitis which occurred in typhoid fever the patient had a violent rigor which recurred in a few hours or days, suggesting purulent infection, but there was no polynucleosis; a culture only showed the presence of the typhoid bacillus, and the condition was simply a parietal phlebitis, the rises of temperature being due to the migration of minute particles detached from the clot. If complete obliterating phlebitis with oedema ensued, the symptom usually ceased; a small dose of citric acid prevented the phlebitis spreading, but if the dose was too large, the clot dissolved too rapidly, and small particles carried into the general circulation gave rise to intermittent febrile attacks as in primitive parietal phlebitis. Professor Chantemesse had seen in a typhoid patient with repeated intestinal haemorrhage the prolonged use of calcium chloride bring about phlebitis; citric acid caused the rapid recovery from the phlebitis, but the coagulability of the blood diminished so rapidly that haemorrhages recurred. From these observations Professor Chantemesse concluded that the blood in women who were operated on for fibroma because they suffered from repeated haemorrhage was more coagulable than normal, and that as the ligature favoured local stasis, voluminous thrombi were formed, and becoming detached caused sudden death. This theory was substantiated by the study of the coagulability of the blood in such cases, before and after operation, and before and after the administration of citric acid. In all cases of fibroma the coagulability of the blood was greater than normal before operation; after two or three days' treatment with citric acid the coagulability was again normal, and the patients recovered without any accident or embolus. The coagulability of the blood could be measured at the bedside. To prevent coagulation of normal blood *in vitro* an equal volume of solution of potassium oxalate of 1 in 800 was necessary. Several samples of blood were mixed with solutions of different strengths ($\frac{1}{400}$, $\frac{1}{600}$, $\frac{1}{700}$, $\frac{1}{800}$, $\frac{1}{1000}$, $\frac{1}{1200}$, $\frac{1}{1500}$), the mixture being kept in fine pipettes, as described by Wright. In a few hours it was easy to see if the coagulability was normal or above or below it. The chemical agents, when ingested, did not act until after two or three days, and must not be given for a longer period. The dose of calcium chloride must not exceed 4 to 6 grams daily, and of citric acid 12 to 18 or even 24 grams daily; they must

be given diluted in a large volume of water. Their use should be followed and regulated by repeated examinations of the coagulability of the patient's blood. Dr. Netter said that since the publication of Wright's results he had often used sodium citrate in phlegmasia.

The following nominations to chairs in the Faculty of Medicine have been confirmed by official decree:—M. Gilbert Ballet, Professor of History of Medicine and Surgery, has been appointed to the Clinical Chair of Mental Pathology and Diseases of the Brain, replacing Professor Joffroy, deceased; M. Pierre Delbet, Professor-Agrégé, has been appointed Professor of Clinical Surgery, replacing Professor le Dentu, resigned; M. Hartmann, Professor-Agrégé, has been appointed Professor of Operations and Instruments, replacing Professor Berger, deceased.

Following the rioting in the neighbourhood of the Faculty of Medicine, delegations of practitioners and students were received by the President of the Republic and by the Premier, M. Clemenceau. The incidents were discussed at a Cabinet Council, and as a result the examination which was held for the diploma of admissibility to the aggregation has been annulled. Moreover, the first and second year students have been permitted to continue their practical anatomy and lectures, and will be allowed to take their two registrations of January and March at the same time, but only on condition that no fresh disturbances occur before the month of March.

A new medical society has been founded, with the title "Société de biologie médicale de Paris," for the study of all radiations known in physics and their application to biological and medical science. The society will meet at 9 p.m. on the second Tuesday of each month at 12, Rue de Seine, in the rooms of the Surgical Society. The president of the society is Dr. Béclère; vice-president, Dr. Guilleminot; general secretary, Dr. Harst; treasurer, Dr. Aubourg.

BERLIN.

Paying Patients in Municipal Hospitals.—Municipal Bacteriological Laboratories.—Decline in the Birth-rate.

THE Berlin municipal authorities are engaged in deliberations on a proposal to reserve special wards in the municipal hospitals for such patients as are able and prepared to pay full price for their accommodation and treatment. During the discussions the question has been raised whether Berlin citizens, other than the needy and indigent, are entitled to the benefits of hospital treatment on payment of the fixed sum. Curiously enough, no authoritative answer can be given. Some of the magistrates hold that the municipal hospitals were erected and destined solely for the care of the "legal poor," although at a later period the municipality made an arrangement with sick clubs and similar organizations to admit their members on payment of 2 m. 50 pf. (2s. 6d.) a day; all other Berlin citizens, they hold, should be rigidly excluded, save under circumstances in which non-admittance might endanger life, and they therefore conclude that it is illegal to take in well-to-do citizens as paying in-patients. Others hold the opposite view. Among the hospital rules and regulations there appears to be none that enjoins the exclusion of any class of citizen, and the large number of artisans, business men, teachers, and officials who form the staple of the paying in-patients would be indignant if they were accused of having entered the hospitals (to the expenses of which they, as ratepayers, contribute) illegally. At the same time, it is recognized that 2s. 6d. a day is far too low a charge for well-to-do patients, and it is suggested that it should be raised to a sum which would mean, at least, no loss to the hospital.

Three institutes for bacteriological examinations in cases of infectious disease, on lines very similar to the State institutes, have been started this year by the Berlin municipality. Their object is twofold: First, to undertake bacteriological examinations on the appearance of epidemic or infectious diseases at the request of the medical officials or of the police authorities; and, secondly, to carry out bacteriological examinations gratuitously (at the request of physicians or general practitioners) in cases in which infectious disease is suspected but cannot be confidently diagnosed without careful bacteriological examination. The three institutes will be chiefly concerned with diphtheria, meningitis, typhoid fever, dysentery, and with the toxic effects of trichinosis, anthrax, glanders, and meat, fish, and sausage poisoning. Tuberculosis will still be left to the State institutes. To facilitate the sending of samples special vessels have been prepared, and are to be kept in stock at every chemist's.

The surplus of births over deaths in Germany—that is, the actual increase in population—which had amounted to 910,275 persons in 1906, fell to 882,625 persons in 1907, this decline being due almost in all districts to a decrease in the births. Nevertheless, in respect of the surplus of births Germany compares favourably with the other great States of Europe both as to the crude figures and as to their proportion to the population.

Correspondence.

THE ACCURACY OF THE *MEDICAL REGISTER*.

SIR,—A very searching inquiry is now being made as to the accuracy of all names and addresses on the *Medical Register* under the following Section (XIV) of the Medical Act, 1858:

> XIV. It shall be the duty of the Registrars to keep their respective Registers correct in accordance with the provisions of this Act, and the Orders and Regulations of the General Council, and to erase the Names of all registered Persons who shall have died, and shall from Time to Time make the necessary Alterations in the Addresses or Qualifications of the Persons registered under this Act; and to enable the respective Registrars duly to fulfil the Duties imposed upon them it shall be lawful for the Registrar to write a Letter to any registered Person, addressed to him according to his address on the Register, to inquire whether he has ceased to practise, or has changed his Residence, and *if no Answer shall be returned to such Letter within the Period of Six Months from the sending of the Letter it shall be lawful to erase the Name of such Person from the Register*, provided always that the same may be restored by Direction of the General Council should they think fit to make an Order to that Effect.

On February 1st a circular of inquiry was posted to every registered practitioner, *excepting only* officers of the Navy, Army, and Indian Medical Services whose names appear in the Navy and Army Lists.

It is of vital importance to all registered practitioners who have not received an inquiry in course of post that they should immediately communicate with this office, as in the event of no communication being received from them it will *be lawful to erase their names from the Register*, according to the Act, and then very serious disabilities will be incurred.—I am, etc.,

H. E. ALLEN,
Registrar.

General Council of Medical Education and Registration of the United Kingdom, 299, Oxford Street, London, W., Feb. 2nd.

THE TREATMENT OF SCHOOL CHILDREN.

SIR,—In the excellent report of the Medico-Political Committee with regard to the above subject the children are divided into three classes:

1. Children whose parents can provide the requisite treatment at their own expense.
2. At the other extreme, children whose parents are in such circumstances that treatment under the existing Poor Law is carried out.
3. Children falling into neither of the foregoing groups.

There is no doubt whatever that Class 3 will gradually absorb Classes 1 and 2. Class 2 will be diminished by the natural inclination to keep out of the hands of the Poor Law; and Class 1 will gradually diminish, because, if a man can get his children just as well looked after without payment as by paying, it is not in his nature to go on paying.

Apart from these considerations, look at the tendency of the age. It is one of gradual Socialistic progress, and that progress alone will soon result in there being no three classes, but only one class. This will mean that

all children between the school ages will be inspected and treated free of all charge to the parents.

Now, we as a body of general practitioners must look ahead and adapt ourselves to these changing times. The system of treatment of these children should be such a system that could be made to meet any demand upon it in the future and yet not injure the livelihood of the general practitioner. I suggest that until the time comes when the State will pay for the treatment of all children attending school we adopt the measures handed in by Dr. A. H. Williams at the Annual Representative Meeting in 1908:

> The medical inspector reports a child as defective. The parent is to be notified that the defect is to be attended to before the child may return to school. Should the parents be unable to pay for treatment then the Education Department is to give a voucher for the payment of the fee on a fixed scale. The parent may then take his child to any practitioner whom he may select, and the practitioner will receive his fee from the Education Department.

There are, however, many practitioners who would want to refer special cases to specialists. If existing conditions are left as they are, these cases would go to the hospitals—the very thing we want to avoid. In the working of this important measure there should be no consideration of any charity whatever. I therefore further suggest that specialists should be appointed (include all of them if possible), who would deal with these cases; but no case should go to any specialist except by a note from a general practitioner, together with the voucher. These specialists could see these patients either at their own consulting rooms, or they could have a building erected for their own convenience, and they would be paid according to a fixed scale. Such, stated briefly, is my proposal. This measure will assuredly pass quickly to the stage of treatment I have mentioned, and I think we ought to begin our method of treatment as we intend to go on.

By adopting this plan we should do away with a good deal of hospital abuse; it would mean a more comfortable existence for many a practitioner; no abuse could come into the system; no practitioner would lose his own patients, and, moreover, it would work very simply.—I am, etc.,

Liverpool, Jan. 25th. A. STANLEY PARKINSON.

THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.

SIR,—Dr. Morgan Finucane's criticisms in the JOURNAL of January 30th of my suggestions which were published under the above heading in the JOURNAL of January 9th call for some reply.

If Dr. Finucane's deductions had not been drawn from false premisses, they would carry considerable weight, but he attributes to me suggestions I have never made, and then proceeds with strong adjective and sweeping condemnation to storm a position I have never occupied. I agree with nearly all Dr. Finucane says with regard to the *existing* Poor Law, but I have not advocated the treatment of the defective school children under the auspices of the Poor Law as it exists at the present moment. I have merely called attention to the fact that legislation is pending which will reform the Poor Law on the lines laid down by the Royal Commission, and it is this reorganized and reformed Poor Law, a Poor Law purged of all the evils to which Lord Lytton and Mrs. Barnett, and many others, have called attention, and which Dr. Finucane quotes with so much zest. I assure Dr. Finucane that I have no wish, and have never suggested, that the defective scholars under discussion should be sent to join the "rows and rows of fat, clean, well-shod, bored, and listless children" sitting in a barrack school.

Dr. Finucane cites the worst side of the Poor Law—an aspect of it already falling out of date; but surely, as a late guardian, Dr. Finucane should know that the modern tendency is against barrack schools and towards the scattered homes plan. I even instanced in my letter the scattered homes for ophthalmia under the Metropolitan Asylums Board. Dr. Finucane, however, ignores this, and, although he urges us to think Imperially, his own mind on this subject seems filled by thoughts of the "rows of sleek children" already mentioned. But all this is sentiment—and much of it false sentiment, in my opinion—for if a man is dependent upon public charity his position in the State is morally the same, no matter by what name he be called or by what charitable organization he exists.

To come to the one practical point in Dr. Finucane's letter: He states that if the proposed work for the children were undertaken under the auspices of the Poor Law, "the necessity of greatly increasing the staff and equipment of the various infirmaries would entail such enormous expenditure as to make the scheme impracticable," and more costly than that of school clinics. Surely a certain staff and equipment will be required in any case, whatever system be adopted, and I fail to see that it would be more costly to add to and improve an existing service than to start a new one. Dr. Finucane does not tell us why he thinks the work would cost more under the Local Government Board than under the Board of Education.

All I urge is that the education authority should hold their hand until the Poor-law Commission's Report is published, and then strengthen the plea of those who see the necessity for a reform of the existing Poor Law—Dr. Finucane and myself among them—by deciding to confine themselves to education, and leaving the public health authority—the Local Government Board under the Poor Law—to treat the children with regard to matters medical.—I am, etc.,

London, S.W., Feb. 1st. HARVEY HILLIARD.

ATOXYL AND SOAMIN AND THE TREATMENT OF SLEEPING SICKNESS AND SYPHILIS.

SIR,—In the JOURNAL of January 30th, 1909, p. 285, attention is drawn to the last quarterly report of the Progress of Segregation Camps and Medical Treatment of Sleeping Sickness in Uganda, by Captain A. C. H. Gray, R.A.M.C.

One of the most important of the somewhat diverse reports collected from the medical officers in charge of the different segregation camps is that by Dr. Van Someren, Medical Superintendent of the Chagwe Camp. As you state:

> Dr. Van Someren reports adversely on the combined treatment by atoxyl and mercury, but gives a more favourable account of a new drug, "soamin" (sodium-amino-phenyl-arsinate; Burroughs, Wellcome, and Co.).

Now, this is very strange, because "soamin" and "atoxyl" are the same thing, both being sodium-amino-phenyl-arsinate. Soamin is the trade name for Messrs. Burroughs and Wellcome's product, and atoxyl that for the product first put on the market by the German firm (Lanolinfabrik, Martinikenfelde, Berlin). Any superior results obtained by Dr. Van Someren, therefore, were not due to his using a different drug, but to his using, in all probability, a pure commercial preparation of that drug. I have had personal experience in my own work of this preparation of Messrs. Burroughs and Wellcome, and can testify to the purity of the preparation and its efficiency in animals affected by trypanosomes.

This error has involved a large amount of labour and of unnecessary printing on the part of the Sleeping Sickness Bureau, and it seems to me well that public attention should be drawn to it, so that this spirited competition between atoxyl and soamin may come to an end.

The same mistake has been made by observers using soamin in syphilis and other diseases, but it is curious that it should have been allowed to pass by all the experts both at the camps in Uganda and on the Sleeping Sickness Bureau in London, and a cablegram to Uganda that soamin is a pure form of atoxyl is distinctly indicated.

The substance in question is the sodium salt of para-amino-phenyl-arsenic acid, and was first discovered by a French chemist, Bêchamp, over fifty years ago, and a few years ago was introduced as a drug by a German firm under the trade name of "atoxyl." It had a brief reputation as a drug in certain skin affections which was rapidly destroyed by the strong toxic effects of certain impurities, which led to blindness in some cases of its continued use.

The use of the drug was revived by the discovery of Thomas and Breinl that it had a marked destructive action upon trypanosomes, and they suggested that it should be used as a drug in sleeping sickness.

It had been so used in many cases long before Koch used it in Africa, and by several observers, the cases being those

of infected Europeans. Koch's share in the work consisted in applying it on a large scale in an expedition of which he then fortunately happened to be in command in Africa; but from extensive experiments on animals and a certain number of cases in man, the action of atoxyl was well characterized and known before any of Koch's work appeared.

It was known to the workers in Liverpool that in all cases life was enormously prolonged by the administration of atoxyl, and that in all cases the parasites could be driven out of the blood by its use, and very often that many successive attacks could be cut short. We also knew perfectly well that in a large percentage of cases recurrences took place, and that ultimately a fatal issue could not be avoided. Why otherwise should we have sought for better methods, or introduced the atoxyl-mercury treatment?

Nor is it any news to us that the combined treatment with atoxyl and mercury often fails. Our own published results show that we have failed in curing large animals with the combined treatment.[1] But our experiments also indicate that it is a better treatment than that by atoxyl alone, and these results have been confirmed by several independent observers, not only in experimental work, but in treatment of sleeping sickness in man. Further, they are confirmed, in my opinion, by the results of this same Sleeping Sickness Bureau's report, which virtually recommends the abandonment of the combined treatment. Any one who reads the report can see that in all the different camps the percentage of improvements is greater and the percentage of deaths much less in the case of the combined treatment than with the arsenical preparation alone.

It may be pointed out that we are not here dealing with counsels of perfection (we rarely are in medicine, especially in the department of treatment), but with what is the best treatment for a disease which is invariably fatal when untreated. Quinine is a specific for malaria, yet there are cases which do not get better and ultimately die in spite of it; mercury is a specific for syphilis, yet, unfortunately, recurrences take place even after mercury. Similarly, amido-phenyl-arsenic acid is a strong specific for trypanosomiasis, and the best we know at the present time, especially in combination with a mercurial treatment. An ever-growing volume of evidence shows that a similar treatment is most efficacious in syphilis, another protozoan disease.

Surely it is too soon to pronounce dogmatic opinions derived from a few months' work in these segregation camps. If the workers have been disappointed as a result of the high anticipations raised by Koch's statements, it only shows that they are not among those who discount such statements at their true value, and are not carried away by lurid reports in the lay press.

In conclusion, I would like to be allowed to do justice to the work of another French chemist, Fourneau, who pointed out that atoxyl was identical with Bêchamp's substance, as credit is often ascribed to Ehrlich for this discovery. Ehrlich and Bertheim's work consisted in showing the true constitution of the body, in that the arsenic atom is directly on the benzene ring. A similar result was obtained and published practically simultaneously by Moore, Nierenstein, and Todd.—I am, etc.,

Liverpool, Jan. 30th. BENJAMIN MOORE.

[1] Moore, Nierenstein, and Todd: *Annals of Tropical Medicine*, vol. ii, 1908, p. 265.

TREATMENT OF RHEUMATIC AND RHEUMATOID ARTHRITIS BY RADIANT HEAT AND CATAPHORESIS.

SIR,—Referring to the interesting article on the treatment of rheumatic and rheumatoid arthritis by radiant heat and cataphoresis, I agree that much benefit is derived by the heat from the radiant lamp, but am not able completely to verify the conclusions. Dr. Bailey attributes the extra benefit obtained from the large American lamp to the ultra-violet rays. Is it not a fact that the glass of the lamp prevents the passage of the ultra-violet rays? Experimentally I have found that a thin smearing of vaseline is sufficient to resist them, and the skin itself is a barrier to their passage, except under special conditions. Any ultra-violet rays which may pass will be used up in the superficial layers of the skin, and therefore their therapeutical value is very small indeed. There is no doubt that this lamp has greater beneficial influence than the incandescent lamps as used in the ordinary way.

With regard to the adoption of local ionization in the treatment of rheumatic conditions, I have had many successes, but the condition of several after a prolonged course of treatment has been most disheartening.

At the present time it is difficult to give a definite prognosis in any special case; though the symptoms in many instances are similar, the reaction obtained is often disappointing. It would be interesting to have the opinion and results of other workers in this branch on similar cases to those Dr. Bailey has recorded.—I am, etc.,

West Hartlepool, Jan. 14th. H. E. GAMLEN.

SODIUM BICARBONATE IN THE TREATMENT OF ACUTE RHEUMATISM.

SIR,—In his remarks on the use of alkalis in practical medicine, published in the JOURNAL of January 30th, my friend Dr. Eustace Smith writes:

> When the salicylate is prescribed in large doses for the treatment of chorea, the addition of double the quantity of the bicarbonate of soda has been recommended by Dr. D. B. Lees for the purpose of counteracting any depressing effect of the salt, especially the dyspnoea which sometimes follows excessive doses of the drug. The chief objection to this practice is, of course, the profound anaemia which such medication is liable to induce.

I hope that Dr. Eustace Smith will forgive me for saying that his "of course" is simply another illustration of the fact that symptoms caused by the disease which we call "acute rheumatism" are too frequently ascribed to the remedies employed in its treatment.

In his second Harveian Lecture Dr. Cheadle writes:

> The effect of rheumatism in producing anaemia in adults is sufficiently well known, but in children this is still more remarkable; the extreme pallor and the haemic murmurs are often most notable. . . . Where the rheumatic state is actively developed, anaemia proceeds apace in children. The presence of the rheumatic poison appears to be inimical to the red corpuscles or their haemoglobin; it either promotes their disintegration or interferes with their production.

And he quotes Trousseau's statement that there is, perhaps, no acute disease which produces anaemia so rapidly as rheumatism. With regard to chorea, Dr. Cheadle says, in the same lecture:

> I am convinced that rheumatism is the by far most common and potent factor.

In the report on the Pathology of Acute Rheumatism and Allied Conditions, by Dr. Ainley Walker and Mr. Ryffel, published in the JOURNAL for 1903 (ii, 659), this sentence occurs:

> The micrococcus has a haemolytic action upon red blood corpuscles greater and more rapid than that of any other streptococcus which we have yet examined—a fact of interest in relation to the very rapid and considerable anaemia of rheumatic fever.

In severe untreated cases of rheumatic fever with pericarditis the pallor is often intense, but I have never seen any marked increase in the anaemia in cases treated by large doses of bicarbonate and salicylate; in fact, the more effectively the rheumatism is treated, the less is the degree of anaemia, as of other rheumatic symptoms.—I am, etc.,

London, W., Feb. 1st. DAVID B. LEES.

THE IMPORTANCE OF RESEARCH IN MENTAL DISEASE.

SIR,—In the issue of the BRITISH MEDICAL JOURNAL of January 23rd I have read with interest the discussion in the Westminster Division on the subject of Dr. Maudsley's generous offer to the London County Council of the endowment of a hospital for the treatment of acute mental illness. Now, Sir, I fear greatly that the realized importance of the *treatment* of mental disease will obscure the infinitely greater importance to the nation of *research* regarding mental diseases. This would be a national calamity. The most up-to-date treatment of acute mental illness can easily be arranged for in suitable hospitals attached to our asylums if these are properly staffed and equipped and arranged with small wards and extensive verandahs. No town hospital can ever compete with a country one in treatment in a case where the "verandah

hospital" is the ideal, and graduated garden work the best means of establishing convalescence. Research work, on the other hand, must be the basis of all advance in specific treatment, and research work can best be carried on in town, as isolation is a terrible barrier to the research worker. It seems to me that a strong effort should be made so to place the new mental hospital that it will be in very close touch with a fully equipped teaching school. Even if elaborately fitted up research laboratories are established at the new mental hospital, no one director can possibly be a leader and adviser in the many different directions that research may take.

The ideal is incorporation with a university whose laboratories would be available for research students in every line; and though in this way a suitable site might cost much more, a great saving in cost would result from the consequent efficiency and saving in laboratory equipment.

No small hospital can hope to retain the services of leading men in bacteriology, histology, physiology, psychological physics, organic chemistry, etc., while close association with a university and its laboratories would secure these advantages and tend to gather a group of young and keen research workers around the new school.

I earnestly hope that this aspect of the case will be given full consideration. Could a new pavilion for acute mental diseases not be built for one of the large hospitals which already have medical schools attached to them and properly equipped laboratories? I would again insist that treatment of an efficient kind can comparatively easily be arranged for on up-to-date lines; but if this chance of securing an efficient mental disease research school is lost it may be a generation before another chance comes to this country.—I am, etc.,

W. A. Parker.

Gartloch Hospital for Mental Diseases, Gartcosh, N.B., Jan. 26th.

APPLICATION OF MENDELIAN RULES TO HUMAN INHERITANCE.

Sir,—I am sorry if I still misunderstand Dr. Drinkwater; but when he takes upon himself the responsibility of developing an entirely *new* theory of Mendelism he must not be surprised if his readers cannot at once appreciate a position the consequences of which are so extraordinarily sweeping. In Dr. Drinkwater's paper which I criticized he wrote of Nettleship's pedigree: "The disease-bearing branches contain 255 members, of whom 53 per cent. were night blind; so that here again is another example of Mendelism in the human subject." There was no hint that a new method of counting had been adopted, which had never occurred to any Mendelian before; we were merely informed that "here was another example of Mendelism in the human subject." Counted in the ordinary and accepted Mendelian fashion, there were 237 normals, 133 abnormals, in addition to 10 normals and 1 abnormal of doubtful determination as to sex, and not improbably doubtful as to night-blindness also; 133 is not 50 per cent. of 370, but differs so widely from it that the odds against night-blindness following the Mendelian rule are gigantic. In order to get the necessary 50 per cent., about 100 normals have to be removed, and this Dr. Drinkwater achieves by removing all the offspring of night-blind individuals who have had only normal offspring. Presumably he also removes—for so he informed me he had done—the offspring of first or second marriages of abnormals, when there were no abnormal offspring of such marriages.

I ask first: How can such a theory possibly help the medical man? Our discussion is on the *application* of Mendelian rules to man. On Dr. Drinkwater's theory the medical man cannot predict, until all the offspring are born to an affected individual, whether he will, on the average, have 50 or 0 per cent. of affected offspring; and, further, it depends on the relative prepotency of the parents, for it may be, to quote Dr. Drinkwater, that "*in the human subject one normal may be recessive, whilst another normal is dominant to the abnormal. If this does happen, it may be that these 'last abnormals' were recessive to the normals whom they married*" (January 2nd, 1909). Let us suppose that the "last abnormal" is (B N); then mated with (N N), we shall have 50 per cent. of (B N) or of recessive night-blind persons, who would somewhere have appeared again in the descent—owing to intermarriage—as night blind, and broken the continuity of the long normal lines, It would be of interest if Dr. Drinkwater would give the gametic formula which he supposes would cover the cases of his "last abnormals," whose lines give only normals.

But there are still more serious criticisms to be made of Dr. Drinkwater's new Mendelism. What becomes of the 50 per cents. reached by the old Mendelism, if we are to follow his method of counting? The observations which gave 50 per cent. before must now be discarded, or are we to say that the Drinkwater rule is only to be applied when we fail to reach the *correct* percentage. Further, every Mendelian anticipates some cases, in which a (D R) × (R R) will give no abnormal offspring, just as he anticipates some cases which give *all* abnormal offspring. If one offspring only be born, it will be normal in half the cases and abnormal in the other half. If two offspring only are born there ought to be 25 per cent. of cases in which both are abnormal and 25 per cent. of cases in which both are normal; if three offspring are born there will be equal (12.5) percentages of cases with all the offspring normal and with all abnormal.

Dr. Drinkwater completely destroys the whole point of the Mendelian theory by cutting out every case in which (D R) × (R R) gave one, two, three, etc., runs of (R R). It is absolutely the same as if a man tossing a penny in arbitrary series of 1 up to 12 removed those series in which there was a run of heads when he set about demonstrating that tossing gave 50 per cent. of heads and 50 per cent. of tails. No logical mind would accept such a demonstration of the equality of heads and tails. Actually Nettleship's data give 14 cases in which one offspring only was born to an abnormal, and in 6 of these that offspring was abnormal. Dr. Drinkwater cuts out the 8 remaining cases in which one normal offspring was born to an abnormal. There are 5 cases in which two offspring, both abnormal, were born to an abnormal, and 10 in which two offspring, both normal, were born to an abnormal; the latter go out, according to Dr. Drinkwater's rule. There are 4 cases in which three offspring, all abnormal, were born to an abnormal, and 6 cases in which three normals only were born to an abnormal, the latter again disappearing from Dr. Drinkwater's results. He, however, included many cases in which one, two or three or more normal offspring were born to an abnormal before the first abnormal offspring came. Must the abnormal, who died before he got beyond the second or third normal child, be supposed to have a different gametic constitution from those who survived and had at last an abnormal offspring?

There is, in fact—not to mince matters—hopeless confusion in such a method of treating Mendelism. The author of it can hardly have realized that to obtain his Mendelian ratio he has introduced the absurdity that no *true* (D R) can die until he has produced at least one abnormal child; for, if he does, his gametic formula is a mystery, and his offspring are to be excluded from a count of the descendants of the abnormal. Certainly Mendel deserves better treatment from those who profess to be his followers!—I am, etc.,

University College, London, Feb. 2nd. Karl Pearson.

THE PREVENTION OF RECURRENCE AFTER OPERATIONS FOR CANCER.

Sir,—The paper of Mr. Charles Ryall, on the Technique of Cancer Operations,[1] shows clearly the danger the surgeon runs in operating of sowing the seeds of an early recurrence, and the mass of facts he has quoted point, apparently, most clearly to some autoinoculation of the patient of so active a type that he compares it to a bacterial infection in its character. I have no wish to dispute this, but I would venture to point out that, like so many theories in connexion with cancer growth, it does not fully explain all the facts of the case; most likely it is not the whole story, but probably there is another factor—possibly that of traumatism and after-irritation of the wound—that has also something to do with it, and which would just as easily explain the facts as presented. For instance, in the effect of curettage of a malignant gland he mentions, the recurrence might also be due to the bruising and tearing

[1] British Medical Journal, October 3rd, 1908.

of the tissues, as well as the dissemination of cancer cells which conceivably take place. The facts that appear to me to be somewhat against this being the whole explanation are that these facts are now very well known to surgeons operating for cancer, and a surgeon will not, if he can help it, cut into the cancer tumour whilst operating, giving it a good wide margin; yet even then cases are seen of stitch recurrence, and it is difficult to imagine that wandering cancer cells are so numerous in the outlying tissues as readily to infect the wound like that; if they are present in such numbers, then it is very difficult to understand why operations are as successful as they are.

There may be an additional factor in the case, and may that not be the traumatism and irritation caused by the stitches? In many cases the effect of traumatism may be quite clearly traced in the origin of cancer, particularly about the breast. The evidence is indisputable. In the analysis of a number of cases published by Cecil Leaf it is mentioned that traumatism accounted for at least 35 per cent., and that the percentage was probably higher than that. This does not prove that traumatism *per se* is sufficient to cause cancer, but in a patient disposed to develop it it may be the exciting cause; and in a patient already suffering from cancer surely trauma might be expected to develop it. It would be interesting to learn whether cancer has been known to develop in patients suffering from it who have sustained an injury, particularly a wound, in some remote part of the body which has subsequently developed cancer. The extreme rarity of autoinfection in cancer of the lip and in the mouth—I have never seen a lower lip infect the upper—is remarkable, and, even when it does occur, might be accounted for in another way. I have seen cases in which cancer has developed around a suture left in for some time after an operation. Two well-marked cases I remember where a suture was overlooked, which showed recurrence nowhere else; and another case of excision of the tongue by the method of division of the lower jaw, where the silver suture left to unite the symphysis was the centre of the most active recurrence. On the theory of traumatism and subsequent irritation of the wound by a foreign body this is just what would be expected.

Why cancer should develop about the stitch holes, and not on the cut edges and other parts of the wound, when all have been equally liable to infection, is only understandable on the explanation that a clean-cut wound does not cause so much irritation and injury as a stitch which is dragged through the tissues, and left to irritate the susceptible parts for many days. It may be that in certain persons, especially when already the subject of cancer, certain cells otherwise normal may, if bruised or irritated, be capable of taking on malignant action.

Mr. Charles Ryall does not even mention the most valuable means we have at present for preventing recurrence after an operation, namely, the judicious use of the *x* rays. Possibly he has not had experience of this, for if he had I think he must have mentioned it. I have found that the *x* rays, especially if used at the time of an operation where practical, are of the very greatest value for preventing recurrence in the site of the wound, and even when it does occur, especially in stitch scars, it clears up in a beautiful and convincing manner by this treatment. I advocate, however, the use of the rays from the very first in all cases, and then all these things that Mr. Charles Ryall describes do not occur. When it can be done it is an immense advantage to give the fullest possible dose of *x* rays at the time of an operation to the open wound, because it is a chance for the most effective use of the rays that never occurs again, as *x* rays are more effective on a surface than at a depth, and possibly may act by destroying loose cancer cells scattered about the wound if such exist. I have had a few cases dating back as far as five years in which this was done in which there has never been any signs of recurrence, the cases are possibly too few and the time too short to convince the sceptical, but should be very suggestive to those surgeons who are anxious to do all that is possible to save the great risk of recurrence that is always present in these cases. I will venture to quote one solitary case, of no great value perhaps to those who require evidence by hundreds.

About two years ago a woman, aged 32, had an operation for cancer on her breast. It was only a partial operation in an early cancer. It was doubtless an inefficient operation, and should not have been done; it recurred at once, and was operated on most thoroughly by another surgeon six weeks afterwards, who removed the entire breast and cleared out all the glands; still, it recurred almost immediately, and he operated again, taking away the greater part of the pectoral muscles, and it was passed on to me at once for *x*-ray treatment. This was about two years ago, and up to the present there has never been the slightest sign of recurrence.

The unbelieving surgeon will regard this only as an example of thorough and successful surgery, and will hold that the *x* rays had nothing to do with it; but I have had very few failures, and quite enough similar successful cases to convince any unprejudiced observer, and think it is a pity that the great value of the *x* rays for preventing recurrence is being so slowly recognized. I think the reason is that the successful use of the rays is not so easily attained as is imagined; it is not so simple and easy as the administration of doses of salts or quinine by any one who happens to have an *x*-ray outfit at his disposal; and it is surprising what inefficient individuals this work is sometimes left to. Sometimes the hospital hall porter, or the handy man about the place, or a nurse; but, after all, I think the most inefficient *x*-ray work is done by the surgeon himself who happens to possess an outfit. No man can serve two masters, and a first class surgeon is very seldom a practical scientist, and, unfortunately, often despises what he does not understand. I hope I shall not be misunderstood as implying that surgeons do not conscientiously do everything possible for their patients, for I know many that do advise the use of *x* rays after operations: but, on the other hand, there are many who never even think of suggesting it. I was speaking about it to one who has operated on a good many cases of breast cancer, and he assured me that he had no recurrence in fully 80 per cent. of his operations; to such a one as that the *x* rays could offer no advantage.—I am, etc.,

Melbourne, Nov. 23rd, 1908. T. G. BECKETT.

WORK IN COMPRESSED AIR.

SIR,—In his address on the Physiology and Pathology of Work in Compressed Air, in the BRITISH MEDICAL JOURNAL of January 30th, Sir Thomas Oliver describes a series of experiments carried out by Dr. Parkin and himself thus:

> We subjected frogs to extremely high pressure, and after a time suddenly decompressed some of them. The web of a frog's foot was drawn over the inside of the glass window of the compressed-air chamber, and by means of the microscope and electric light illumination we could watch the circulation of the blood in the frog's capillaries. During compression the circulation proceeded quite naturally, but after sudden decompression, while the circulation seemed to go on apparently unchanged, by degrees the rate of the blood flow diminished, and gradually ceased, preceded by a slight to-and-fro movement. All at once a bubble or two of air would appear in the capillaries, and these running together formed a large embolus inside the vessel, etc.

Sir Thomas Oliver does not give a word of acknowledgement that he owes this experiment to me. It is an experimental demonstration of which any man may be justly proud, especially when it is completed by recompression bringing about re-solution of the bubbles, and, as I observed once, recovery of the circulation. It is the most convincing demonstration of the fact that bubbles are the cause of caisson disease, a fact which Sir Thomas Oliver was very unwilling to acknowledge in a conversation with me some years ago at the London Hospital Medical College. This is the second time Sir Thomas Oliver has described this experiment as if it was his own. The first time was when he read a paper at the Society of Arts, a paper for which, I believe, he was awarded a gold medal. The second time he goes a step further and describes experiments which demonstrate that relatively high percentages of CO_2 have no effect in increasing the risks of compressed air, without any acknowledgement of the work of Dr. Greenwood and myself, work which proved the statements made by him on this very matter at the Society of Arts to be erroneous.

In the matter of the frog-web experiment, Dr. Parkin was introduced to me by a distinguished colleague, and I was asked to give him help and advice as to the performance of experiments on compressed air. Dr. Parkin, under my direction, had a chamber made like mine, and repeated my experiment, and acknowledged his indebtedness to me in the thesis he wrote on this subject.

I have yet to learn of any single new experimental fact which has been contributed to the pathology of caisson

disease by Sir Thomas Oliver. How little of the experimental work he has done is shown by the fact that he describes the experiments as done on pithed frogs. He mentions with approval the method of stage decompression, which recently has been introduced as the routine practice in the Admiralty, a method founded on certain theoretical assumptions of Dr. John Haldane, and experiments on goats carried out to prove these assumptions by Dr. Haldane, Dr. Boycott, and Mr. Damant. I take this opportunity of saying that Mr. Greenwood and I have repeated on pigs some of their fundamental experiments on goats, and with contrary results. Stage decompression has proved in our experiments less safe than uniform. We do not admit the justice of the theoretical postulates on which it is based. There are many factors still unknown in the causation of decompression bubbles, and one of these we have some evidence to show is the presence of food in the alimentary canal. The escape of the men in the burst caisson mentioned by Sir Thomas Oliver may have been due to this in part, and in greater part to absence of fatigue, as the caisson burst about the breakfast hour. The increased number of cases which occur with long and repeated shifts we believe is due not to fuller saturation of the body with nitrogen, as Drs. Haldane and Boycott suppose, but to fatigue of the heart brought about by prolonged work. The circulation is then too feeble to allow the escape of nitrogen during decompression. The men sit quiet and weary in the lock. They ought during decompression to breathe oxygen and work hard.—I am, etc.,

Loughton, Essex, Jan. 30th. LEONARD HILL.

THE HOME TREATMENT OF SCARLET FEVER.

SIR,—The line of prophylaxis indicated by the pathology of scarlet fever is for clinical purposes the same as in a series of fatal diseases such as diphtheria, measles, and whooping-cough, and of less serious affections such as influenza, mumps, and others. It is admitted that in all of them the upper respiratory tract is the head quarters of infection; yet are we ever taught that the entire stress of our efforts at disinfection should be concentrated upon that region? I have consulted our best and most recent textbooks, but in most cases I have found no reference under the headings of prophylaxis and treatment to this all-important matter. Doubtless the indication is so obvious that it might be held to go without saying. But the practical result of that silence is that it commonly *goes without doing*, as is too well shown by the relapses of influenza and whooping-cough, and by the late contact cases of diphtheria and of scarlet fever.

External ablutions are indispensable, and fortunately they are practised. But Dr. Robert Milne is entitled to credit for the attention which he pays to a more dangerous surface; only, if I may say so, his method is too limited locally in its application. Whether we are dealing with scarlet fever, or with any of the other diseases I have mentioned, we should bear in mind that cleanliness is the simplest and the most efficient of our antiseptics, and that our patient's disease is unwashed until the *entire* upper mucous tract is systematically and frequently cleansed. Opinions may differ as to the merits of the simple and painless method which I have long advocated and practised in all these conditions, namely, frequent instillations of jasmin oil through the nostrils, to spread above and behind to regions inaccessible to sprays, douches, and gargles, to be continued from the onset through the entire duration of the period of observation. If this is not good enough let us find some better method. But let us not allege the fact that we cannot destroy the microbes *in situ* as an excuse for continuing to neglect adequate efforts to sweep them clean away.—I am, etc.,

London, W., Jan. 31st. WILLIAM EWART.

THE REMEDIAL USE OF ALCOHOL.

SIR,—The address delivered before the Border Counties Branch by Dr. Macdonald bristles with controversial points. I will take only one—the treatment of lobar pneumonia. As Dr. Macdonald truly observes, an ounce of practice is worth a pound of theory.

In my experience of fifteen years' practice in a purely working class district on a clay soil, I have seen from forty to fifty cases of lobar pneumonia, many of the patients being alcoholic subjects, and have yet to write my first death certificate for that disease.

I rely on digitalis, strychnine, careful feeding, and *absolute rest*, but always refuse at that critical period, when the overburdened and dilated right heart has almost reached breaking point, to help my patient over the precipice by prescribing the so-called stimulant that must often, by its paralysing effect on the cardiac nerves, take away his last chance of recovery.

In a recent severe case of double pneumonia in a lad of 18 the crisis was delayed, and my courage almost failed, especially as the relatives begged piteously to be allowed to give him brandy "before he died." I assured them that, desperate as the case appeared, if they kept to the non-alcoholic treatment the patient would recover. And he did. "Lobar pneumonia, cardiac failure"—so runs the usual certificate, and the cause of the cardiac failure in 99 cases out of 100 is—alcohol.

I send this note just to encourage young abstaining practitioners who are apt to be led astray by dogmatic statements as to the virtues of the old-fashioned alcoholic treatment of lobar pneumonia.—I am, etc.,

Stoke-on-Trent, Feb. 1st. A. A. HILL.

ALPINE OR HOME CLIMATES FOR EARLY TUBERCULOSIS.

SIR,—I have read with much interest the address delivered at the Medical Graduates' College by Dr. William Ewart on the above subject, and from a long experience of Alpine climate I am enabled to confirm all that Dr. Ewart expresses regarding the value of mountain air as a remedial agent in the treatment of early phthisical cases. The importance of the question is immense, but I can only briefly refer to the extraordinary change of opinion which has taken place in some quarters as to the virtue of climate in the open-air treatment.

For reasons which I will mention in a moment the Swiss Alps have not proved as attractive to frail people of late years as formerly. The family with a son or daughter who looked rather delicate but otherwise attracted no particular attention is not now so often seen. The young person who cannot walk uphill without a strained breathlessness, or other inoffensive individuals with a slight cough, are scarcely met with. It must be remembered that these "invalids" bring with them many relatives and friends in their train. We might therefore suppose that they would be welcomed by the Swiss hotel proprietor, and that he would do as much for the comfort and convenience of delicate clients as in days past. Instead, you see announced in hotel advertisements and prospectuses the intimation that "consumptive cases are not received," "persons with tuberculosis not admitted," and at the same time stress is laid on the "air cure" being especially potent in neurasthenia, debility, convalescence, and overwork!

I think it is almost a popular creed that mountain climate is *par excellence* more suited to lung troubles than to most other conditions, but one of the reasons for all this confusion is the "scare of infection." The belief that tuberculosis is "caught" by coming in contact with a person suffering from the complaint has taken root in places. Some persons have been known to write to an hotel to be assured that no consumptives were admitted before they settled on taking rooms. One thing and another has led the hotel proprietor to intimate publicly that his house is barred to such cases, and the "cases" have taken him at his word and remain at home, or perhaps visit the South Coast resorts. Others have the well-equipped English sanatoriums open to them. It may be asked why, if in search of health, they do not enter the sanatoriums of Switzerland and obtain with disciplinary treatment the grand advantage of Alpine air and sunshine. A few do so, but English people will never be induced to patronize largely the foreign sanatorium. This remark, of course, does not apply to the Alexandra Sanatorium at Davos, as that establishment will be English in the true sense.

It has become the fashion within the last few years for a winter holiday to be taken in Switzerland by thousands of English, and although they arrive late—say about

December 15th to 20th—such a large influx compensates for the thin autumn season and the absence of the invalid class who arrive earlier and make a longer stay. Every hamlet and many summer hotels that can offer good skating and tobogganing in winter with convenient slopes in the vicinity for the Norwegian ski, advertises and opens its doors for the two months of mid-winter devoted to "snow sports." There is an atmosphere of heroism and hurry about these places which ill suits the easy-going valetudinarian. A reckless excitement for speed leads to all sorts of accidents, and in some cases loss of life; but the magnificent surroundings of dry, crisp snow, keen, frosty air, and a brilliant sun are found nowhere like it in the world, and can be enjoyed in quite a rational, health-giving manner, if one is disposed that way. That there has been some neglect of Alpine climate, from a medical point of view, within the last few years can be explained by the establishment in England of first-class sanatoriums for open-air treatment, with excellent management and appropriate dieting, which have proved a counter attraction; but there is a factor among the manifold advantages of a calm atmosphere, with dry, cold air in the winter climate at the snow levels which we cannot obtain elsewhere in any such intensity or profusion —namely, *sunlight*. We shall hear more of the sun bath as time goes on.—I am, etc.,

Montreux, Switzerland, Jan. 23rd. TUCKER WISE.

THE CAUSATION OF INGROWING TOENAIL AND THE LOCATION OF GOUT.

SIR,—Will you kindly allow me a short space to thank Dr. Joy for his letter in support of my theory with regard to ingrowing toenail and the location of gout?

As he points out in the last paragraph, long-continued pressure can cause gouty manifestations, in his case by direct pressure, in mine by indirect pressure. In the second paragraph he points out that ingrowing toenail is quite common on the outer side of the big toe, where, of course, the boot, however tight, cannot press.

With regard to Fig. 2, I might say that the owner of the original would smilingly protest against such an accusation as wearing pointed boots, he being a member of the well-known family of tramps.

One can easily understand Dr. Joy's delight in the dear old textbooks, especially if they are well-bound, but perhaps I may be allowed to point out that although my dear old textbooks suggest that chilblains may be treated by painting with tincture of iodine, I prefer to treat them with calcium salts; also it is of interest to reflect that whilst my dear old surgery textbook suggests that callous ulcers of the leg may be treated by bandaging, red lotion or even amputation, I prefer to rely on the method I introduced, namely, by calcium iodide.

My innate modesty revolts at the idea of attempting to add anything to that unfathomable fund of knowledge that exists in Harley Street, with which sentiment I feel certain I have Dr. Joy's sympathy.—I am, etc.,

Swansea, Jan. 31st. G. ARBOUR STEPHENS.

CONFERENCE ON THE MEDICAL PROFESSION AND FRIENDLY SOCIETIES.

SIR,—Is it not rather sad—to use no stronger term—to find the Charity Organization Society intervening in the affairs of a body of educated men, and is it not somewhat suggestive of a trade dispute?

If we *must* imitate the methods employed in trade, let us at least take the position of masters, not that of servants. In the commercial world, when it is desired to raise the price of some commodity, those who control the market do not confer with their customers, they agree amongst themselves, and the price is raised.

Has not there been quite enough parleying? By all means let there be a conference, but let it be amongst ourselves, and let it be held with the firm determination to have no half measures, but to finally settle the question.

It is possible for the medical profession to struggle on without the help of the friendly societies, but I fancy that the latter would not have quite so huge a capital if we severed our connexion with them. So long as we allow the friendly societies to fix the terms of remuneration, etc.—that is, to occupy the position of masters—so long must we be content to occupy the position of servants.

Unfortunately it seems to be indisputable that amongst our number there are many who put a very low value upon their services, and whose code of ethics is still lower. It seems probable, as "M.D." says in his letter in the JOURNAL of January 16th, that "as long as the 'powers that be' are unable or unwilling to inflict adequate penalties which shall touch the pockets of delinquents, so long will the friendly societies prey on us." Cannot, then, some effort be made to induce the licensing bodies or the General Medical Council to make it unprofessional conduct to accept contract work under the present system?

Assuming that canvassing and advertising are deemed unprofessional because they savour of trade methods, is not it inconsistent that acts which no tradespeople would be guilty of are allowed to pass unchallenged? Would any sane shopkeeper entertain for a moment the suggestion that he should habitually sell goods at a price far below their value? And yet this is what we do when we undertake to supply medical and surgical attendance to farmers, builders, and tradespeople for 4s. a year. If it is unprofessional to act like a tradesman, is not it also unprofessional to act like an idiot? I am sorry that I can think of no less offensive word to describe our conduct.

Instead of being a matter affecting only a certain *section*, is not it one which concerns the honour of the whole profession? If so, then surely it is the manifest duty of those in authority to make it impossible for the friendly societies to be in a position to say, "If one doctor will not accept our terms there are plenty of others who will."—I am, etc.,

February 1st. ANHIDROTIC.

THE ST. JOHN AMBULANCE ASSOCIATION AND THE MEDICAL PROFESSION.

SIR,—I have read with interest the letters of Dr. Jepson of Durham and "Another Lecturer" in your issues of January 16th and 23rd, and beg to assure them that the same grievance of which they complain—the irregular method of distribution of honours by the Order of St. John —also obtains in South Wales. I have been an ambulance lecturer continuously for over fifteen years, and have done other work for the St. John Ambulance Association, for which I admit I have received the lowest grade of "Decoration" which the Order of St. John gives. But there have been two or three flagrant instances in this district of men receiving distinctions after two years' connexion with ambulance work. In 1905 I examined a man for a first-aid certificate, who in 1907 was promoted over my head (I am also an officer in the brigade) to a position on the staff of the district. The only reason assigned for this promotion after two years' work was the fact that he had contributed a few pounds to his local corps. Again, in 1906, I examined for a first-aid certificate a man who in 1908 was made an Assistant Commissioner for his district. This distinction, after two years' work, was due to the fact that he has collected a good sum of money for his local centre. These were two laymen, but I know a retired army doctor in the South of England, who was made a Knight of Grace after three years' service for the St. John Ambulance Association.

I have talked over these matters with a large number of doctors who give ambulance lectures, and who are officers in the brigade, and they are so thoroughly disgusted with this favouritism, that if another instance occurs they will sever their connexion with both the St. John Association and Brigade.—I am, etc.,

January 25th. DISGUSTED.

THE REPORT OF THE PUBLIC HEALTH COMMITTEE.

SIR,—Will you allow one interested in this matter space for a few comments? First, I would like to endorse Dr. Bowhay's letter in the JOURNAL. It is almost impossible for me and many others to attend meetings of the Divisions. It means my leaving home about 12 o'clock, and getting home again at 8 o'clock, a length of time I cannot afford to be away from my practice. To notice the reasons advanced for the employment of whole-time men:

1. The everyday duties of sanitary inspection and supervision are not habitually performed by whole-time men holding large districts, in spite of paragraphs 1, 3, and 6 of the instructions of the Local Government Board. I have

a local paper containing reports of several meetings of local authorities, when the annual reports were read. In each case, the report as to the sanitary condition of the district, and the work done to improve such conditions, was from the sanitary inspector, the medical officer of health merely dealing with the statistics, etc. A man I met recently told me that in case of an outbreak of infectious disease in the district in which he resides the medical officer of health asks him to see to it. In a village near here, a cesspool taking all the drainage of the village has been allowed to exist close to the public well, and it was not till a new squire came into the place and complained that the medical officer of health took any action, or, as far as I can find out, had any knowledge of the condition.

2. This suggestion I maintain is a most unjust one to make. Where is there any justice or fairness in condemning a set of men on a pure assumption? When or where has it been shown that the part-time men as a whole do not do their duty because of fear of their patients? Let this be *proved* before damning a whole class of men, many of whom have been doing good work under most discouraging circumstances for years. Were not almost all the pioneers in the sanitary service part-time men, and did they do no work for fear of their patients? If you are going to argue from inference, not from proved facts, is it not agreed that a man cannot be expected to do good work while his appointment rests at the pleasure of men with whom he may come into opposition in the course of his work? But work is done in spite of this risk, and therefore I say that it is grossly unfair to assume that a man will not do his duty because he may have to deal with his patients. After twenty years' work I can say that I have had much less trouble to get work done by those who were my patients than by those who were not. People are much more likely to listen to a man in whom they already place confidence than to one who comes only to find fault.

3. He is more likely to have the interests of his district at heart than one who is not dependent on its welfare.

4. The knowledge of his patients and their home life is often of the utmost value to the medical officer of health, and he gets to know things no outsider could ever discover.

5. This argument applies equally to any and every public appointment.

6. This public opinion is largely manufactured by the inspectors of the Local Government Board, for of course if they take any view, the general public accept that as being the view of experts. The Local Government Board inspectors like large districts (I was told by one of them) because they get more uniform treatment of the statistics and of course it is much easier for them to deal with one large district than twenty small ones. But I have never known it said by any one of them that part-time men, as a whole, are not doing their duty as well as the whole-time men. If a man is not doing his work, he can be removed by the Local Government Board not approving his reappointment, and should be.

As an addition to the propositions for the employment of part-time men, I would point out that it is necessary for the inhabitants of country places to have medical men resident in the district, and it is to the advantage of the people that they should be good men. We hear a good deal about a proposed State medical service, to include sanitary and Poor-law officers. Now, if this work is to be taken from the general practitioner, how is he to live? There are lots of places where, even with these appointments, it is only possible to make a bare living.

We also hear of a possible national medical service. I would ask my brother practitioners to pause and think before they talk so glibly of a State service. The State's idea of the value of medical services is shown by the salaries offered to well-qualified men after six or more years' study; and it would seem from these that £250 a year is looked upon as affluence.—I am, etc.,

February 1st. A COUNTRY M.O.H.

THE MEDICAL PROFESSION AND UNPAID STATE WORK.

SIR,—The question which rises uppermost in the minds of the thinking element of the laity with regard to the medical profession is, How do they live? See how the medical man is mercilessly sweated from the birth of a child of poor parents to the death of this individual. A midwife is probably engaged to attend the mother in her confinement. There arises some complication which places the patient's life in danger. A medical man is summoned, and has to neglect his own work in order to attend to this case. Fee most probably *nil*, or at the most he has to be contented with what he can get. A medical man attends a confinement. The Government asks the doctor to send a notification to the local authorities. Fee *nil*. Then let us follow this child a little further. He goes to school, and his parents for some reason or another keep him away for some time. This means the loss of a grant, so at once the school officer tells the parent that a medical certificate must be obtained. No fee is offered, but medical men are now refusing to sign these certificates without reward. Medical school inspectors are appointed to ascertain physical and mental defects which may be present in the children attending elementary schools. No provision is made for remedying defects discovered, but this duty is expected to be carried out by medical men without fee or reward. The child grows up and the State protects him in every way. He must not work more than a certain number of hours a day, and he must not work except at union wages. If (generally through his own fault) he becomes unemployed, then the rates must help him. Again the unfortunate medical man must put his hand into his pocket to help pay the rates. Then the man grows old and obtains an old-age pension. We are told that this is thanks to a Liberal Government; but I should rather say, Thanks to the middle class, which does not take so much recreation as the working man (so-called), and which is the financial butt of all Governments. Some of these pensioners cannot visit the post office, so at once a certificate to that effect is required; let the medical man sign it. Fee *nil*. Then the old man dies and requires a death certificate to be signed by a medical man. Fee *nil*.

What, on the other hand, in spite of this treatment, has the medical man done for the State, and what is he still doing? He is pointing out how the public health may be safeguarded by attention to hygiene. He unostentatiously works away at ascertaining the cause and treatment of disease. He gives ambulance and other lectures for the benefit of the public, and in innumerable other ways assists the State. The time has come when we must by united effort teach the powers that be that we refuse to work for nothing. If we combine, our voice must be listened to. The more we do for nothing, the more we may do. Let us steadfastly set our faces against these socialistic abuses, which are so fast growing apace. Let us teach the State that it has a duty to perform to not only the working but also to the professional classes. The medical man may toil morning, noon, and night; what cares the State so long as it obtains his services for nothing? Has this present Government, which boasts so freely of its beneficent work, passed one measure to benefit the condition of a profession which holds in its power the very life of the people? The time has now come for action. Let the Divisions rise to a sense of their duty, and in no uncertain voice demand that social progress shall not be made at the expense of the hardest worked and worst paid profession in the world.—I am, etc.,

PESSIMIST.

Medico-Legal.

DEATH UNDER STOVAINE.

AT Battersea, on January 22nd, an inquest was held by Mr. John Troutbeck with regard to the death of a man aged 72, a house painter, who died while under the influence of stovaine at Wandsworth Infirmary. Dr. W. L. MacCormac, the assistant medical superintendent of the infirmary, according to the report in the *Wandsworth Borough News*, said that an operation became necessary if the patient's life were to be prolonged. He suffered from enlargement of the prostate, with great pain, and because he had a senile heart and diseased lungs stovaine by subdural injection was chosen in preference to a general anaesthetic. It was injected between the third and fourth lumbar spines, and loss of sensation below the level of the injection began in about eight minutes. Having made the injection, Dr. MacCormac and his assistant washed out the patient's bladder, and while this was being done the patient, who was stone deaf, exchanged thoughts with him by gestures. Before the operation

was begun the patient's face was noticed to be very pallid, and he yawned immoderately. Failure of the circulation and respiration followed, and the ordinary stimulants failing to combat this collapse, death occured half an hour later. The yawning began about ten minutes after the stovaine had been injected. He attributed death to anaemia of the brain, and connected it with the stovaine. He could not see what else caused the yawning. But the only reason why he connected death with the stovaine was because death followed so soon after its use. In reply to a question by the coroner whether it would not be correct to say he died from anaemia of the brain while he was under the influence of stovaine, Dr. MacCormac said he would be glad if he would put it that way. Dr. Freyberger, who made the necropsy, gave the cause of death as bloodlessness of the brain in consequence of failure of the heart while the man was under the influence of stovaine, and stated that he had known two similar cases.

The jury returned a verdict of "Accidental death," and expressed the opinion that everything possible had been done for the patient.

POST-MORTEM EXAMINATIONS FOR CORONERS IN IRELAND.

DR. JAMES M. HERON, J.P. (London, S.W.), writes: In the BRITISH MEDICAL JOURNAL of January 23rd, in reply to "R. C. P.," you state: "So far as we are aware, no medical officer of a workhouse or county infirmary in Ireland has obtained a fee for making a *post-mortem* examination or for giving evidence regarding the death of any person dying in either institution." In one case, during the summer of 1908, at an inquest held in the County Infirmary, Downpatrick, by two Justices of the Peace (Messrs. McLean and Denvir) respecting the death of a patient who died after admission, Dr. Elwood, assistant surgeon to the infirmary, was called as a medical witness and was paid a fee for giving evidence as to the cause of death. I had been asked to act, as one of the justices of the county, at the inquiry, but was unable to do so owing to another engagement. The inquest was held during the absence of the coroner for the division. Perhaps this case may serve as a precedent for use hereafter by the Medico-Political Committee of the Association. The payment of this fee passes under review by the auditor, but I do not think that he will undertake to investigate the circumstances of each inquest held, but must be satisfied by the certificate of the expenses incurred by the coroner in holding an inquest, or in this case by his substitute—namely, the court formed by two justices of the peace. The payment interested me greatly at the time of the inquest as I knew it to be illegal, but I have satisfied myself that the payment was made.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee.

CARDS AND FEES.

SOLEM asks (1) whether a newly-established practitioner should leave cards or a card when making his courtesy call; (2) whether fees for attendances at inquests made by a locumtenent belong to the latter or to the principal.

*** (1) He should leave one card. It is not usual for a gentleman making a social call to leave more than one card. (2) If the attendances at inquests take place during the time the locumtenent is in the service of the principal the fees must be paid to the latter.

Public Health AND POOR-LAW MEDICAL SERVICES.

SCHOOL CLOSURE.

M. O. H.—Article 57 of the Code is as follows: "If the sanitary authority of the district in which the school is situated, or any two members thereof, acting on the advice of the medical officer of health, require either the closure of the school or any department thereof, or the exclusion of certain children for a specified time, with a view to preventing the spread of disease or any danger to health likely to arise from the condition of the school, such requirement must at once be complied with." This article has usually been interpreted as meaning that a sanitary authority or two of its members could only insist upon the closing of a public elementary school provided the medical officer of health advised that such school should be closed. There are conceivable circumstances—such as the absence through illness of the medical officer of health or there being at the time no medical officer of health in office—which would necessitate the sanitary authority or two of its members issuing a closing order without acting upon the advice of the medical officer of health.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Natural Science Scholarships.

THE following scholarships are announced for competition in Natural Science: March 9th, Keble College; March 16th, Merton, Exeter, and New Colleges; June 29th, Brasenose College.

Degree in Medicine.

The degree of B.M., B.Ch., has been conferred on Cyril D. H. Corbett, of University College.

UNIVERSITY OF CAMBRIDGE.

Third Examination for Medical and Surgical Degrees, Part II.

THE examination in the Easter Term will in future begin on the last Tuesday but one before the end of term.

H. Scott, B.A., Trinity College, has been appointed Curator in Zoology in place of D. Sharp, M.A., F.R.S., who has resigned.

The following degrees were conferred on January 28th:

M.D.—H. H. Clarke, Trin.; H. H. Dale, Trin.; H. Rischbieth.
M.B.—G. F. Greenwood, Sid. Suss.
B.C.—H. B. Elton, Gonv. and Cai.; W. W. Treves, Gonv. and Cai.; A. E. M. Woolf, Emm.

The next examination for the Third M.B., Part II, will take place in the Easter Term on Tuesday, June 15th.

UNIVERSITY OF MANCHESTER.

The Botanical Department.

MR. W. H. LANG, M.B., D.Sc., Lecturer in Botany in the University of Glasgow, has been appointed to the new Chair of Cryptogamic Botany at the Manchester University. The Chair has been founded under a bequest of the late Thomas Barker, formerly Professor of Mathematics at Owens College. Dr. Lang was a research scholar of the Glasgow University, and has made a special study of the cryptogams, travelling for the purpose in Ceylon and the Malay Peninsula. His appointment is specially suitable as the late Professor Barker was interested in the Bryophyta, of which Dr. Lang has made a special study. Dr. Lang has for several years been an external examiner at the Manchester University and is now an examiner in the University of London.

Miss M. Stopes, D.Sc., Ph.D., has been appointed Special Lecturer in Palaeobotany in the university. Some time ago Miss Stopes was assistant lecturer in the university and resigned the position in order to visit Japan, where she made a collection of fossil plants from the mesozoic coal measures. She did good work at the laboratory for botany in the University of Tokio, where she gave a course of lectures on fossil plants.

Pro-Vice-Chancellor.

Professor H. B. Dixon has been elected Pro-Vice-Chancellor of the University in place of Professor Horace Lamb, whose term of office has expired.

Lancashire Education Committee.

The Vice-Chancellor has again been nominated as representative of the University on the Lancashire Education Committee.

UNIVERSITY OF BIRMINGHAM.

Number of Students.

THE registered students of all kinds last session numbered 960, of whom 507 were matriculated students proceeding to either a junior or senior degree. They were distributed as follows, the numbers in previous years being given for comparison:

	1903-4.	1905-6.	1907-8.
Faculty of Science	99	177	226
Faculty of Arts	85	141	180
Faculty of Commerce	13	22	24
Faculty of Medicine	89	79	77
Total matriculated	286	419	507
Unmatriculated	554	483	453
Total	840	902	960

In the Faculties of Science, Arts, and Commerce there were 450 male and 279 female students, and in the Faculty of Medicine 170 male and 43 female students.

Income and Expenditure.

The following are particulars of income and expenditure for the year ending September 30th, 1908: Income—General endowment, £5,343 3s. 3d.; special endowments, £1,955 0s. 2d.; Government grants, £11,000; local authorities' grants, £7,583; students' fees, £13,863 11s. 4d.; engineering testing fees, £9 13s. 6d.; examination fees, £2,190; day training colleges, £2,084 8s. 1d.; bacteriological department, £1,395 19s. 2d.; brewing school, £1,368 17s. 5d.; sundries, £536 7s. 4d.; total, £47,330 2s. 3d. Expenditure—Principal's department, £2,643 9s. 4d.; Vice-Principal's department, £656 6s. 8d.; stipends of professors, lecturers, and demonstrators, £24,260 19s. 4d.; examinations, £2,358 11s. 7d.; degree congregation, £85 0s. 7d.; one-third of membership fees for university societies, etc., £181 5s. 8d.; departmental expenses, £7,580 18s. 7d.; library, £873 17s. 3d.;

interest on mortgage and bank interest, etc., £2,078 16s. 11d.; general management, £3,378 14s. 4d.; maintenance, £4,113 14s. 10d.; brewing school, £1,556 14s. 8d.; annuities payable under the will of the late Sir Josiah Mason, £152; sundries, £454 18s. 10d.; Queen's College Hall of Residence, £1,275 9s. 7d.; total, £52,264 2s. 10d. Deficiency on the year, £4,934 0s. 7d.

Proposed Pension Scheme.

The council of the university approved a pension scheme, limited to full-time professors and some of the principal officials. At the age of 65 a contributor may retire and be entitled to an allowance of one-sixtieth of his then salary for every year's service with the university, with a maximum of half salary. Such a scheme can be made self-supporting with regard to all members entering the service after it is established on a contribution of 10 per cent. of salary, of which 4 per cent. will be contributed by the professors and 6 per cent. by the university. The difficulty is to meet the claims of the present staff, many of whom are approaching superannuation age, and who cannot contribute except during the years which remain to them before attaining 65. Before the liabilities to the present staff are disposed of, the university will have to provide sums which vary considerably every year, the maximum being about £1,100 in 1925, diminishing gradually after that date, and finally disappearing twenty years later.

Hall of Residence for Women Students.

The new hall of residence for women students was taken over by the university on January 1st, 1909. The buildings are situated on a site on the eastern side of Edgbaston Park Road, opposite the new university buildings. The land has been granted by Lord Calthorpe, on a lease for ninety-nine years, at a ground rent of about £80 a year. The buildings have cost £16,000, and donations have been received amounting to £12,500. They provide accommodation for sixty students. The new hall is under the direction of Miss S. Margery Fry as warden. The buildings, lease, and funds have been offered as a free gift to the university.

The New University Buildings.

The total cost of the present new buildings of the university, together with their equipment and the laying out of the site, will be, when completed, just over £500,000, to which must be added another £50,000 to provide for the further expenses of staff and maintenance. Towards this sum only about £300,000 can be provided out of the funds at the disposal of the council, so that another £250,000 is required at once. This sum the council is most anxious to raise before the middle of this year, when it is hoped that the King may consent to open the new buildings in person. Sums amounting to £58,900 have been already promised, including £30,000 from Sir Charles Holcroft, Bart., and £10,000 from the Lord Mayor (Alderman G. H. Kenrick).

UNIVERSITY OF LIVERPOOL.

THE following diplomas were granted by the Senate on January 27th:

Diploma in Tropical Medicine.—John Rhodes Dickson, M.B., C.M.Edin.; Henry Joseph Glover, M.B., C.M.Edin.; Francis Wood Greaves, M.B., Ch.B.Edin.; James Herbert Hugh Harrison, M.R.C.S., L.R.C.P.; Jamshed Byramji Mama, L.M.S.Bombay; Charles Ross Pearce, M.B., C.M.Edin.; Alexander Frederik-Schoorel, M.D.Leyden; George Edward Stewart, M.B., C.M., F.R.C.S.Edin.

Diploma in Public Health.—Charles Samuel Brewer, L.R.C.P., L.R.C.S.Edin.; Herbert Macpherson Cargin, M.B., Ch.B.Edin.; Katharine Rosebery Drinkwater, L.S.A., M.B., B.S.Lond.; Bertram Thomas Johnson Glover, M.B., Ch.B.Liverpool; Clare Oswald Stallybrass, M.R.C.S., L.R.C.P., M.B., B.S.Lond., John Teare, M.B., Ch.B., Victoria and Liverpool.

UNIVERSITY OF EDINBURGH.

Additional Examiners.

AT the January meeting of the Edinburgh University Court the following additional Examiners were appointed: Professor Arthur Thomson, University of Oxford (Anatomy); Professor John B. Haycraft, University College, Cardiff (Physiology); Professor James Martin Beattie, University of Sheffield (Pathology); Dr. William Fordyce, Edinburgh (Midwifery); Dr. William Russell, Edinburgh (Clinical Medicine).

Gift to the Natural Science Laboratory.

It was reported that Emeritus Professor Crum Brown had presented to the University, for the Department of Natural Science, a Natterer's apparatus for the liquefaction of gases.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary quarterly comitia was held at the college on Thursday, January 28th, the President (Sir R. Douglas Powell), in the chair.

Lecturers.

The President announced that he had nominated Dr. G. H. Savage as Harveian Orator, and Dr. Lindsay as Bradshaw Lecturer for 1909, and Mr. Foulerton, F.R.C.S., as Milroy Lecturer for 1910.

Swiney Prize.

The President further announced that the Swiney Prize had been awarded to Dr. C. A. Mercier for his work on criminal responsibility.

Membership.

The following gentlemen were admitted Members of the College:

George Augustus Auden, M.D.Cantab., L.R.C.P.: Francis William Clark, M.D.Durh., L.R.C.P.; John Frederick Halls Dally, M.D.Cantab., L.R.C.P.; Robert McCarrison, M.B. R.U.I.; Edward Fretson Skinner, M.B.Cantab., L.R.C.P.; Arthur Lionel Hall Smith, M.B.Cantab., L.R.C.P.; James Aubrey Torrens, M.B.Lond., L.R.C.P.

Diplomas in Public Health.

In conjunction with the Royal College of Surgeons diplomas in Public Health were granted to the following gentlemen:

Alfred Ball, M.B., B.S.Lond., L.R.C.P., M.R.C.S.; Robert James Bethune, M.D., B.Ch. R.U.I.; Arthur Burnell Carter, L.R.C.P., M.R.C.S.; Bertram Walter Cherrett, M.B., B.S.Lond., L.R.C.P., M.R.C.S; James Clark, M.D., Ch.B.Aberd., M.R.C.P.Lond.; James Alfred Patrick Cullen, M.B.Lond., L.R.C.P., M.R.C.S.; Leonard Fabian Hirst, M.B., B.S.Lond., L.R.C.P., M.R.C.S.; Duncan Matheson Johnston, L.R.C.P., M.R.C.S.; Andrew Alexander McWhan, M.B., Ch.B.Glasg.; Frederick Septimus Penny (Captain R.A.M.C.), M.B.Lond., L.R.C.P., M.R.C.S.; Norman Hamilton Walker, M.B., B.S.Lond., L.R.C.P., M.R.C.S.; Arthur Harold Wilson, L.R.C.P.and S.Edin., L.F.P. and S.Glasg.; Subrahmanyam Yenamandram, L.M. and S.Madras.

Licence.

The licence of the College was granted to eighty-one gentlemen.

Communications.

The following communications were received:

1. From the Secretary of the College of Surgeons, reporting proceedings of their Council on January 14th, 1909.
2. From the Home Office, enclosing for the information of the College a letter from the organizing committee of a proposed international congress for improving the condition of the blind, to be held in Naples, March 30th to April 3rd, 1909.
3. From the Dean of the Faculty of Medicine, University of Edinburgh, proposing the third week of June as the date of the next examination for the Murchison Scholarship, to be held in Edinburgh this year. This was agreed to for the present year, and the fixing of a permanent date, convenient both to the College and the University, was deferred.
4. From the Rector of the University of Geneva, inviting the College to send a representative to join in the commemoration of the 350th anniversary of its foundation, and of the 400th anniversary of the birth of Calvin, the founder, to be held in Geneva, July 7th to 10th, 1909. The invitation was accepted, and it was left to the President to nominate a representative.

Councillors.

On the nomination of the Council Drs. Sidney Phillips, W. Pasteur, Sidney Martin, and A. E. Garrod were elected Councillors in the room of Drs. Osler, Crocker, Tooth, and Acland, who retired by rotation, and Sir William Allchin was elected a Councillor for one year in the place of Dr. C. E. Beevor, deceased.

Central Midwives Board.

Dr. Champneys was re-elected a representative of the College on the Central Midwives Board for one year from April 1st next.

University of Birmingham.

Dr. Theodore Williams, who retired by rotation, was re-elected a representative of the College on the Court of Governors of the University of Birmingham.

Reports.

The following reports were received:

1. From the Committee of Management, dated December 18th, 1908, recommending that (*a*) Whitgift School, Croydon, and King's College School, Wimbledon, be added to the list of institutions recognized by the Examining Board in England for instruction in chemistry and physics; (*b*) the Municipal Technical Institute, Portsmouth, which is already recognized for the courses of instruction in chemistry and physics, be also recognized for instruction in biology; (*c*) the Medico-Chirurgical College, Philadelphia, be added to the list of institutions at which the curriculum of professional study required for the diplomas of the Royal Colleges may be pursued, and whose graduates may be admitted to the Final Examination of the Examining Board in England on production of the required certificates of study.

The recommendations were adopted.

2. The annual return by the examiners of the results of the examinations for the licence in the year 1908.

Library.

Books and other publications presented to the library during the past quarter were received, and thanks returned to the donors. A special vote of thanks was passed with acclamation to Sir William Allchin for a valuable gift of a twelfth century manuscript copy of the *Regimen Sanitatis*.

Obituary.

THOMAS LAURENCE READ, M.R.C.S.,

KENSINGTON.

A LARGE circle of friends and patients will learn with sincere regret of the death of Thomas Laurence Read, who had been in active practice until Christmas Eve, when he had a slight attack of aphasia without any lasting hemiplegia; from this he was rapidly recovering, and was, indeed, planning a change to Brighton, when on January 20th he had a hemiplegic seizure on the left side. From this he partially rallied, and his death, which was quite sudden and unexpected, occurred on January 28th, at 2 a.m.

He was born in Hornton Street, Kensington, on August 15th, 1833, and was therefore in his 76th year. Few even among those who had known him for many years realized that he had reached such an advanced age, for he was alert and full of energy to the very end of his active career. After being educated at the Old Hall, St. Edmunds, Ware, he was apprenticed to his father, who was a popular practitioner in Kensington, and a friend of Thackeray and Dickens. His medical education was completed at St. George's Hospital, where he was a contemporary of Henry Gray the anatomist. To the hospital he was always warmly attached, and his genial face was familiar to many generations. In 1856 he became a Member of the Royal College of Surgeons, and immediately started in practice with his father in Campden Hill. A little later—about fifty years ago—he settled in the house in Petersham Terrace in which he died; the house was then newly built and surrounded by market gardens. The alterations in the surroundings of his home correspond with the vast changes which he had witnessed during more than fifty years' general practice. To the practice of his profession he gave unreservedly all—and it was much—that lay in his power. It is indeed remarkable how well he bore his incessant hard work and worry, for his holidays were scanty, and he devoted himself heart and soul to the interests of his patients. As a practitioner he was as sound as he was straight. He had no need to cultivate any artificial bedside manner; his own genial and naturally sympathetic personality, of which he seemed and was entirely unconscious, made him welcome wherever he went; his patients valued him as a doctor, and felt that he was a friend. That he was a representative of the best type of general practitioner was recognized by his election in this capacity as a member of the Council (1901–3) and of the House Committee (1902–3), of the Royal Medical and Chirurgical Society, and of the Council of the Royal Society of Medicine.

Mr. Read lost his wife some twenty years ago, and leaves a large family. He has had two sons in the profession; the elder died some years ago at Odiham, the younger has for some years been in partnership with his father.

Sir THOMAS BARLOW, Bart., K.C.V.O., writes: Everybody who knew Read trusted him. The keynotes of his character were his practical wisdom and his genuine kindness of heart. These qualities contributed to make him a fine example of the best type of general practitioner. For, although he was always grateful and appreciative of help in diagnosis and suggestion from any of his *confrères*, yet his acquaintance with his patients was so intimate and his knowledge of therapeutics was so sound that he seemed almost intuitively to realize the limits of what could be attempted by way of treatment, and he was so thorough and unselfish that he had no need for flattery and honeyed speech. He keenly enjoyed the friendship of all sorts and conditions of men, but most of all that of his professional brethren, and his devotion, through a long life, to his old medical school and everything connected with it was remarkable. Read "warmed both hands at the fire of life"; he was in harness almost to the end, and he leaves a vacant place in the affectionate memory of all who knew him which will long remain unfilled.

We are indebted to Mr. Read's old friend, Mr. Pickering Pick, for the following note:

He was a very prominent general practitioner, who practised his profession in Kensington for more than half a century. In fact, he has been associated with Kensington all his life, his father having been in practice in that place at the time of his birth. Read will be much missed and mourned by a large circle of patients and friends; his genial, sympathetic manner, and his kindness of heart endeared him to all with whom he came in contact.

JOHN EVAN SPICER, M.A., M.D., B.C.CANTAB.,

MEDICAL REGISTRAR TO THE LONDON HOSPITAL.

ON January 13th, in Switzerland, John Evan Spicer was killed by an avalanche. By his death the medical profession and the London Hospital lost one of their most promising men, one who would have taken a front place in the ranks of physicians and public men.

He was born at Dulwich in 1875, and educated at Clifton and Cambridge; he entered the London Hospital in 1900, and, after holding all the resident appointments, he was appointed Medical Registrar in June, 1908. While working at the hospital he contributed to medical literature "An Unusual Case of Dilatation of the Stomach" (*Clinical Society's Transactions*, vol. xxxix), "Three Cases of Malformation of the Tracheo-Oesophageal Septum" [with Dr. Keith] (*Journal of Anatomy and Physiology*), "A Case of Abnormal Development of the Oesophagus" (*Lancet*, 1907), "Imperforate Urethra in the Fetus as a Cause of Dystocia" (*Proceedings of the Royal Society of Medicine*).

Although Spicer's experience and knowledge of medicine were great, yet the sense of loss which spread over the hospital when the news became known was a markedly personal one. More even than the loss of the physician the loss of the man was deplored.

At the memorial service held by the Free Church Camps for Schoolboys a large gathering of men were present, and the tributes to his memory by Sir J. W. Benn in the *Daily News* and *British Weekly*, and the sincere expressions of grief which came from all associated with him in work, testify to the many interests he had at heart.

All through his hospital career the great feature of his life was ardour. He was more than keen. Whether going round with the clerks or dressers in the morning, with his chiefs in the afternoon, or in the evening round, there was an intense zeal about all his work which spread to all with whom he was associated. His knowledge of the patients was not confined to the medical aspect, for many is the man or woman who was helped materially, while in hospital and after discharge, by Spicer to keep things going till completely restored to health and work. There were many sad hearts in humble homes when the sad news became known. Between his terms of residence, working in the *post-mortem* room or anatomical laboratory, he displayed the same ardour in all he undertook, and no day's work was too heavy. He excelled in powers of organization in all his work at the hospital, whether teaching, investigation, or recording; in conducting the locumtenent agency, in arranging Christmas troupes, in arranging particulars for camps, those powers shone out, and have made the labours of those who will attempt to take up his work so much simpler. Spicer was magnificent; of wide experience in medicine here and abroad; exceptionally well read, constantly cheerful even when dead tired, ever ready with jest, or song, or help, his departure has left a gap which no man can fill; but at the root of it all was an earnest, Christianity which impressed all his fellow-workers with its reality and sincerity. The memory of that meeting at Whitefield's Tabernacle, when, in spite of inclement weather and short notice some three or four hundred of his fellow campers gathered together to do homage to his memory was a grand testimony to his position among the young men of the Free Churches. The testimonies which were borne there to his ardour, organization, cheerfulness, and Christianity in camp life were in keeping with the whole of his life at Dulwich, and in the hospital, and in spite of the deep feeling shown there was the predominant assurance that his life had not ended; but would remain in its influence for many years to come. So is it at the hospital—we miss the square-shouldered form, the fine head, the manly step, but his influence on his clerks, dressers, and fellow residents will ever remain as a witness to the life of a good man. R. M.

GEORGE ELLIS, M.B.Dub., F.R.C.S.I.,

DUBLIN.

The medical profession of Ireland lost its oldest member in the person of Dr. George Ellis, who died in Dublin on January 27th, having attained his 100th year. He retired from practice no less than forty years ago, being possessed of ample means. Even the older members of the senior group of the profession now living did not know Dr. Ellis, for although he continued to take interest in the progress of medicine, he did not attend the meetings of societies. He was, however, known to some, and was much respected. He does not appear to have held any public appointments.

Dr. Ellis was educated in Trinity College, where he took the degrees of A.B. and M.B. in 1834. He became Fellow of the Royal College of Surgeons in 1844. His contributions to the journals were few, but in one he strongly advocated the use of rennet wine, which he prepared by adding sherry to pieces of the stomach of a newly-killed calf, and allowing it to rest in a bottle for three weeks. He gave this wine to those, especially medical men, "who were very liable to suffer from gastric trouble through worry of mind and body and irregular hours for meals and sleep." He was the author of *Irish Ethnology, Socially and Politically Considered.*

The death has taken place at Oyne, Aberdeenshire, of Dr. Davidson, who retired from general practice some years ago. He was a graduate of Aberdeen University, and held important appointments, first in Egypt and afterwards in Australia. In consequence of a breakdown in health he retured to Aberdeen, and, after a period of rest, practised in that city. His health again threatened to give way; he retired to Oyne about five years ago. Dr. Davidson gave much time and attention to the cultivation of roses, a subject on which he was an authority.

The Services.

INDIAN MEDICAL SERVICE.

The result of the January examination was announced on January 30th, 1909. There were 38 candidates, of whom 33 ultimately entered for the examination; of these 31 qualified, the first 12 being admitted as Lieutenants-on-Probation, while one withdrew during the examination. The names of the successful candidates, with the marks obtained by each out of a possible total of 5,100, are given below, together with their degrees and medical schools.

Name.	Degrees, etc.	Medical School.	Marks.
H. C. G. Semon ...	M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P.	Oxford University; University College Hospital; Freiburg University, Germany	4,016
V. B. Gokhale ...	M.R.C.S., L.R.C.P., L.M. and S.Bombay	Grant Medical College, Bombay; King's College, London; University College Hospital	3,633
A. M. Jukes ...	M.D., B.S.Lond., D.P.H.Cantab.	St. Bartholomew's Hospital	3,566
G. G. James ...	M.B., B.S.Lond.	University College, Cardiff; Westminster Hospital	3,504
W. D. Keyworth ...	B.C.Cantab.	Cambridge University; Charing Cross Hospital	3,381
B. Gale	M.B., Ch.B.Glas.	Glasgow University	3,319
J. H. Horne ...	M.B., Ch.B.Edin.	Edinburgh University	3,312
H. H. King	M.B., B.S.Lond.	St. Bartholomew's Hospital	3,280
M. D. A. Kureishi	M.R.C.S., L.R.C.P.	Lahore Medical College; King's College Hospital	3,231
R. E. Flowerden ...	M.B., Ch.B.Aberd.	Aberdeen University; St. Thomas's Hosp.	3,225
A. J. Lee	M.B., B.S.Lond.	University Coll. Hosp.	3,194
I. G. B. Shand ...	M.B., Ch.B.Edin.	Edinburgh Univ.; Extra Mural School of Medicine, Edinburgh	3,188

Letters, Notes, and Answers.

BRITISH MEDICAL ASSOCIATION AND BRITISH MEDICAL JOURNAL CHANGE OF ADDRESS.

The offices of the British Medical Association and of the British Medical Journal have been removed to 429, Strand.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Sufferer asks for advice as to the prevention and treatment of attacks from which he has suffered four or five times a year. The last attack began after a deposit of urates for several days, the symptoms being soreness and dryness of the throat, the soft palate and the uvula being congested, intense frontal headache, aching in the limbs and slight shivering, with, on this occasion, no elevation of temperature, although in other attacks it has risen to 101°. There ensues shortly profuse nasal discharge without odour, with morning cough, which is relieved by expectoration of a large quantity of white frothy mucus. The cough, nasal discharge, and lassitude continue for from ten days to three weeks. Of the many drugs tried, he has derived greatest benefit from sodium salicylate.

ANSWERS.

Senex.—South Formosa is by no means an unhealthy place, and the climate is fair. The means to be adopted for the preservation of health in the tropics will be found in any of the works on tropical medicine or tropical hygiene. The following may be mentioned: Professor Simpson's *Maintenance of Health in the Tropics* (London: Bale, Sons and Danielsson. 1905. 2s. 6d.), and *The Principles of Hygiene in Tropical and Subtropical Countries* (London: Bale, Sons and Danielsson. 1908. 15s.), by the same author. If the emigrant is a medical man, he should take Manson's *Tropical Diseases*. Fourth edition (London: Cassell and Co. 1907. 12s. 6d.), and Daniels and Stanton's *Laboratory Studies in Tropical Medicine*. Second edition (London: Bale, Sons and Danielsson. 1907. 16s.).

Treatment of Tapeworm in Children.

Dr. J. Cockburn Syson (Glasgow) writes: A patient of mine (girl) first exhibited symptoms of *Taenia solium* by passing segments of the parasite at the age of 18 months. During the past nine and a half years—she is now 11—repeated attempts have been made, without success, to dislodge the worm. All the usual anthelmintics were tried. Reading of filmaron in the Journal of January 16th, I procured the drug and administered it according to directions. A few hours afterwards about 2 ft. of worm were dislodged, including the head.

First-Aid Lectures.

J. N.—In deciding what fee to ask for a course of first aid to the employees of a company, the position of the company and the nature of the work might be taken into consideration, as well as the amount which the lecturer might be able to make by his practice in the time which he must give up to the class. If the work is hazardous, it is to the interest of the employers that the men should be instructed in first aid. Generally speaking, it is fair to give a course to working men, when the expenses are paid by the employers, at half fees—namely, 10s. 6d. for each meeting, or £2 12s. 6d. to 3 guineas for the course of five or six meetings.

LETTERS, NOTES, ETC.

Errata.—In line 2 of the fourth paragraph of Dr. Harold Kerr's letter on The Home Treatment of Scarlet Fever (British Medical Journal, January 30th, p. 307), the name "Stickler" is incorrectly printed "Hickler." In the following letter on the same subject, by Dr. Percy Newell (p. 308), the special oil referred to should have been termed "oleusaban," not "olensaban," as printed.

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N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.